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REGIONAL NOISE ELEMENT



NOISE

COUNCIL OF FRESNO COUNTY GOVERNMENTS


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RESOLUTION NO. 91-17R

A RESOLUTION OF THE SELMA CITY COUNCIL
APPROVING GENERAL PLAN AMENDMENT NO. 90-86, EA NO. 90-557

WHEREAS, on February 4, 1991, the Selma City Council, at a regularly scheduled meeting, considered an amendment of the Selma General Plan by adoption of an Interim Noise Element; and

WHEREAS, The City Council considered the environmental assessment (EA No. 90-557) prepared for the project. The environmental assessment, including State Clearinghouse Review, concluded that no adverse impacts will result from adoption of the Interim Noise Element; and, further, that the project involves no potential for any adverse effect, either individually or cumulatively on wildlife resources; and

WHEREAS, the City Council considered testimony of all interested parties wishing to speak relative to the project.

NOW, THEREFORE, BE IT RESOLVED, that the Selma City Council approves General Plan Amendment No. 90-86 and, hereby, adopts the Council of Fresno County Government's Regional Noise Element as the Interim Noise Element of the Selma General Plan.

BE IT FURTHER RESOLVED, that the Selma City Council adopts a Negative Declaration for the project as concluded in Environmental Assessment No. 90-557 and makes findings of De Minimis Impact upon Wildlife Resources. The Planning Director of the City of Selma is authorized to certify a Certificate of Fee Exemption for filing with the Office of Planning and Research.

The foregoing resolution is hereby approved this 4th day of February, 1991, by the following vote, to wit:

AYES: 4 COUNCILMEMBERS: ALLEN, DERR, MECHIGIAN, BROCKETT

NOES: COUNCILMEMBERS: NONE

ABSENT: 1 COUNCILMEMBERS: KENYON

Arnold E. Brockett
MAYOR OF THE CITY OF SELMA

ATTEST:

City Clerk of the City of Selma

RESOLUTION NO. 91-739

A RESOLUTION OF THE SELMA PLANNING COMMISSION APPROVING GENERAL PLAN AMENDMENT NO. 90-86, EA NO. 90-557 AND FORWARDING RECOMMENDATIONS TO THE SELMA CITY COUNCIL

WHEREAS, on January 14, 1991, the Selma Planning Commission, at a specially scheduled meeting, considered an amendment of the Selma General Plan by adoption of an Interim Noise Element; and

WHEREAS, the Planning Commission considered the environmental assessment (EA No. 90-557) prepared for the project. The environmental assessment, including State Clearing House Review, concluded that no adverse impacts will result from adoption of the Interim Noise Element; and

WHEREAS, the Commission considered testimony of all interested parties wishing to speak relative to the project.

NOW, THEREFORE, BE IT RESOLVED that the Selma Planning Commission approves General Plan Amendment No. 90-86. The Commission further recommends that the Selma City Council adopt a Negative Declaration for the project and adopt the proposed Interim Noise Element of the Selma General Plan.

BE IT FURTHER RESOLVED, that Planning Commission recommends that the City Council establish its intent to provide a comprehensive update of the Noise Element of the General Plan within one year of the date of adoption of the interim document.

The foregoing resolution is hereby adopted this 14th day of January, 1991, by the following vote, to wit:

AYES: 6 COMMISSIONERS: Rothgarn, Wyrick, Allen, Chesebro, Shaeffer, Alderete

NOES: COMMISSIONERS None

ABSENT: COMMISSIONERS: (one vacant position)

Lawrence Alderete
CHAIRMAN OF THE COMMISSION

ATTEST:

Secretary, Selma City Planning Commission

AGENDA SUMMARY REPORT

SUBJECT: Resolution No._____ A resolution of the Selma City Council approving General Plan Amendment No. 90-86, EA No. 90-557 (Interim Noise Element).

BACKGROUND

The purpose of this public hearing is to consider General Plan Amendment No. 90-86 for adoption of an Interim Noise Element of the Selma General Plan. Section 65302 of the California Government Code identifies a Noise Element as one of seven mandatory elements of the General Plan to be prepared and adopted by cities and local agencies.

ENVIRONMENTAL DOCUMENTATION

Environmental Assessment No. 90-557 was conducted for the General Plan Amendment project. The environmental review process included compliance with the State Clearinghouse review provisions of CEQA. The Initial Study concluded that no adverse environmental impacts will result from the project. A copy of the Initial Study prepared for this project was submitted in an advance package to the Council. Adoption of a Negative Declaration is recommended.

Assembly Bill 3158, effective January 1, 1991, requires that the Department of Fish and Game impose and collect fees amounting to $1250 for the filing of a negative declaration. However, if the lead agency finds that, as a result of its initial study, a project involves no potential for any adverse effect, either individually or cumulatively on wildlife resources, no fees shall be paid.

RECOMMENDED ACTION:

Adopt Resolution No.

Prepared by: Planning Director
Coordinated with: City staff
Attachments: Draft Council Resolution, Draft Certificate of Fee Exemption, Planning Commission Resolution, State Clearinghouse Letter

MEETING DATE February 4, 1991

Because the proposed noise element is a policy statement relative to noise regulations and does not deal in land development, the initial study identified no potential to adversely affect wildlife resources. Staff has prepared a Certificate of Exemption, De Minimis Impact Finding, for certification by the Planning Director as approved by the Council.

DISCUSSION

Planning staff proposes the adoption of the Regional Noise Element and associated technical reports to represent the Interim Noise Element of the Selma General Plan. The Regional Noise Element was prepared by the Council of Fresno County Governments in 1975.

The COG Regional Noise Element deals effectively with the basic characteristics of sound and its effects on people's health. It summarizes the guidelines and legislation applicable to noise in the State of California. It includes a survey and analysis of problems in the City of Selma, as well as, fourteen other cities and the County of Fresno. It also provides projected noise contours for specific industrial sites and major transportation facilities throughout the Fresno County Region.

The report recommends standards, goals and policies necessary to protect health and well-being of the residents. Implementation measures are spelled out so that the adopted standards, goals and policies can be achieved. A glossary of terms and complete methodology are included in the appendices.

CONCLUSION

Staff is of the opinion that the adoption of the proposed Interim Noise Element will bring the overall Selma General Plan into technical compliance with government code requirements for noise elements. Staff recognizes the need to incorporate current data into the noise element and, therefore, proposes to update the noise element within a year of adoption of the current proposal. The interim document provides the technical basis for update.

COUNCIL OF FRESNO COUNTY GOVERNMENTS

REGIONAL NOISE ELEMENT

September, 1975

The preparation of this report was financed in part through a 701 Comprehensive Planning Grant from the U.S. Department of Housing and Urban Development administered by the State of California, Office of Planning and Research, Project Number CPA/1001.65.

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11. Contract/Grant No.
CPA/1001.65

12. Sponsoring Organization Name and Address

U.S. Department of Housing and Urban Development and
California Office of Planning and Research

13. Type of Report & Period Covered
Final

14.

15. Supplementary Notes This Report has been prepared to assist the member governments of the Council of Fresno County Governments in fulfilling the State of California's mandated requirement for a Noise Element to be included in their General Plans.

16. Abstracts

This Report deals effectively with the basic characteristics of sound and its effects on people's health. It summarizes the guidelines and legislation applicable to noise in the State of California. It includes a survey and analysis of problems in fifteen (15) cities providing projected noise contours for specific industrial sites and major transportation facilities throughout the Fresno County Region. The Report recommends standards, goals, and policies necessary to protect the health and well-being of the residents. Implementation measures are spelled out so that the adopted standards, goals, and policies can be achieved. A glossary of terms and complete methodology are included in the appendices.

17. Key Words and Document Analysis. 17a. Descriptors

Noise Element
Model Noise Ordinance

17b. Identifiers/Open-Ended Terms
Noise Contours
Decibel
Attenuation
Barrier
Ambient Noise Level

17c. COSATI Field Group

18. Availability Statement	19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages
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EXECUTIVE SUMMARY

Report Summary

Community noise levels in Fresno County were found to be at levels or increasing to levels that are harmful to the health of the County's residents. Noise is an environmental pollution that has long been tolerated, and tolerated because the residents impacted by the noise failed to realize the harmul side effects, nor did they realize that community action could be taken to reduce these noise levels.

Comprehensive community noise surveys have been conduted for each of the incorporated cities in the Fresno County Region. These surveys provide the base information necessary to evaluate community noise conditions as they relate to the general well-being of the residents by determining present noise levels in each of the urban and rural communities of the County. The survey also examined each community to determine existing and potential noise problems. The surveys revealed that noise levels in Fresno County vary from very quiet to levels that can cause physiological and psychological damage to the County's residents.

Noise conditions were monitored at those stationary (industrial) sites which were specified as possible noise problems by the communities administrative official. In addition, every attempt was made to determine the existing environmental noise conditions around critcal receivers such as hosptials and convalescent homes, parks and schools in each community. All of these sites have been mapped and contour lines have been developed for the noise generators when possible. Also shown on the maps are projected contour lines for the major transportation facilities throughout the Fresno County Region. The facilities included are the State highways, the Atchison, Topeka, the Santa Fe and the Southern Pacific Railways, the Fresno Air Terminal, and Chandler Field.

The Report also contains the proposed Community Noise Control Program and a Community Noise Control Ordinance.

Noise Summary Pamphlet

An education pamphlet has also been prepared jointly by the Council of Fresno County Governments and Fresno County Environmental Health Services to help the general public become more familiar with the characteristics of noise and the County's Community Noise Control Program.

Noise Technical Report

Additional information providing support for the Regional Noise Element can be obtained in the technical report entitled Noise In The Fresno County Region, A Technical Report on Problem Analysis and Contour Development, January 1975. The Report analyzes community noise as a problem and develops noise contours for the entire region. The Report was prepared by the Envicom Corporation; Sherman Oaks, California.

Community Review and Citizen Participation

The draft Regional Noise Element has been reviewed by COG's Advisory Committees. Changes and suggestions have been incorporated into the Final Document.

Staff from the Council of Fresno County Governments and the Fresno County Environmental Health Services have made numerous presentations before planning commissions, city councils, The Board of Supervisors and the COG's Regional Citizen Committee. Further technical assistance is available upon request to any member government.

Adoption and Interpretation by Local Governments

Noise is a regional problem that can best be addressed by a study similar to this one and then modified by the local governmental agencies responsible for implementation.

Steps for local government adoption of this Plan:

I. Analyze impact of study in relation to your jurisdiction.

II. Accept or modify the Advisory Policy recommendations.

III. Determine the environmental assessment and prepare an Environmental Impact Report or Negative Declaration (sample Negative Declaration for cities and County provided).

IV. Process the Plan through review committees, holding public hearings as required.

V. Adopt the Regional Noise Element by reference or with modifications (sample adoption resolution for cities and County provided).

Future Needs

The Regional Noise Element like all other General Plan Elements will need to be updated periodically. Additional noise level readings should be taken on a regular basis in each community to monitor the current noise level conditions. As project level environmental impact reports are prepared for significant developments, that new information, before during, and after construction should be recorded for analysis. Alterations may be necessary to preserve the intent of this Regional Noise Element.

SAMPLE NEGATIVE DECLARATION*
FOR CITIES AND COUNTY

To Whom it May Concern:

Pursuant to California Environmental Quality Act of 1970 (CEQA), and State Guidelines, and subsequent guidelines for implementation of CEQA and State Guidelines, the Council of Fresno County Governments and Fresno County Environmental Health Services have made an initial investigation of possible environmental impacts of the following described Report:

Proposed Report: A Noise Element of the _____General Plan

Said Regional Report was prepared by the Council of Fresno County Governments. It has been found that said Report will not in itself have a significant effect on the environment and that an Environmental Impact Report (EIR) is, therefore, not required by the CEQA. A brief statement of reasons supporting such finding is as follows:

> Implementation of the Policies and Recommendations set forth in the Regional Noise Element will tend to reduce ambient noise levels within the local jurisdiction. In addition, said implementation will tend to reduce land use conflicts related to noise and will provide a means for improving and abating existing noisy conditions. No adverse effects upon the environment are anticipated.

Any person may object to dispensing with such Environmental Impact Report or respond to the findings herein. Any person seeking information as to the time and manner to object or respond, may do so by inquiring at said offices during regular business hours.

Dates this _____ day of _____, 197_.

_____

_____ _____
(Address of Department Offices) (Department)

_____ _____
(Telephone Number of Dept.) (Authorized Signature)

_____ _____
(Date Posted) (Position/Title)

*Each local jurisdiction should consult there own legal counsel in making this determination. Circumstances may change as this advisory document is modified to meet specific jurisdictional needs and preferences.

SAMPLE ADOPTION RESOLUTION
FOR CITIES AND COUNTY

BEFORE THE
(Name of City or County)
RESOLUTION NO. _____

IN THE MATTER OF)
NOISE ELEMENT)
_____)

RESOLUTION ADOPTING THE
REGIONAL NOISE ELEMENT
PLAN FOR (Name of City or County)

Whereas, the State of California Planning Law (Government Code Section 65302 (g) requires that each city and coutny adopt a Noise Element for their General Plan; and

Whereas, the Council of Fresno County Governments and the Fresno County Environmental Health Services have prepared such a Report which address these requirements, including:

1. Identification of noise problems;

2. Recommendations for controlling noise problem and;

3. A proposed Community Noise and Vabration Control Ordinance.

Now, therefore, be it resolved, that the (name of city or county) adopts by reference the Regional Noise Element with the following modifications (if any) as the Noise Element of the General Plan for the (name of city or county) serving as a working document which will be periodically reviewed to meet said requirements (document modifications).

The foregoing resolution was passed and adopted by the (name of city or county) this _____ day of _____, 197_.

AYES:

NOES:

ABSTAIN:

ABSENT:

Signed: _____
Name and Title

ATTEST:

I hereby certify that the foregoing is a true copy of The Resolution of the (name of city or county) duly adopted at a regular meeting thereof held on the ____ day of _____, 197_.

Signed: _____
Name and Title

INTRODUCTION

The Regional Noise Element has been prepared by the Council of Fresno County Governments (COG) to assist its member governments in fulfilling these general plan requirements as stated in the California Government Code 65302 (g):

> "A noise element in quantitative, numerical terms, showing contours of present and projected noise levels associated with all existing and proposed major transportation elements. These include but are not limited to the following:
>
> (1) Highways and freeways,
> (2) Ground rapid transit systems,
> (3) Ground facilities associated with all airports operating under a permit from the State Department of Aeronautics.
>
> These noise contours may be expressed in any standard acoustical scale which includes both the magnitude of noise and frequency of its occurance. The recommended scale is sound level A, as measured with the A-weighting network of a standard sound level meter, with corrections added for the time duration per event and the total number of events per 24-hour period.
>
> Noise contours shall be shown in minimum increments of five decibels and shall be continued down to 65 dB (A). For regional involving hospitals, rest home, long-term medical or mental care, or outdoor recreational areas, the contours shall be continued down to 45 dB (A).
>
> Conclusions regarding appropriate site or route selection alternatives or noise impact upon compatible land uses shall be included in the general plan.
>
> The state, local, or private agency responsible for the construction or maintenance of such transportation facilities shall provide to the local agency producing the general plan a statement of the present and projected noise levels of the facility, and any information which was used in the development of such levels."

The technical information that has been gathered has also assisted the COG in evaluating the impact of its Transportation Plan on local environments.

Noise is of regional concern because the primary generators of noise are transportation facilities which traverse the jurisdictions of many local governments both inside and outside the Fresno County Region. Legislative control of noise from these sounds is pre-empted by higher levels of government and cannot be controlled locally. The alternative is to carefully plan and control land use around these sources. This is necessary because of the adverse effects that noise can have on human health and well-being.

To plan properly for the mitigation of adverse environmental noise effects, it is necessary to focus on the problem at the community level. This requires, in addition to the Noise Element, a Comprehensive Community Noise Control Program and a Community Noise Control Ordinance.

The purpose of the Community Noise Control Program and the Community Noise Control Ordinance is to insure the protection of the health and well-being of the people living in the community. It is generally well agreed that many sounds are instrusive and annoying, but most people are not aware that a great deal of everyday noise can be harmful to their health. Noise control is an important factor in the maintenance of a high quality environment in all cities.

The noise element, as part of a community's general plan, should provide the framework for dealing with this common community problem. It should define specific noise generators and resulting noise levels and their impacts upon other land uses. The noise element, along with its ordinance, should establish the goals, policies, and standards necessary to achieve and maintain acceptable noise exposure levels throughout the community.

In almost every aspect of our uban society, it seems nearly impossible to change conditions that already exist. This is why careful planning is so important in preventing unwanted conditions from occurring in the first place. The maintenance of a high quality environment is no exception. It needs to be planned for carefully. It will not happen accidentally.

The purpose of this Report is to prepare a complete and comprehensive Noise Element, outline a Community Noise Control Program, and provide a comprehensive adoptable Noise Ordinance for the Fresno County Region.

For the convenience of the reader, a glossary has been included at the end of the Report to explain many of the more technical terms used in the Regional Noise Element.

CHAPTER I
BACKGROUND INFORMATION

Characteristics of Sound

To deal effectively with the phenomenon of noise, it is necessary to have some basic understanding of what the characteristics of sound are, how sound behaves, and how it is measured. The Regional Noise Element defines noise as "unwanted sound that is disruptive to an individual's environment."

Sound is a vibration transmitted by molecules. Lower pitched sounds have slow vibrations with long wavelengths. Higher pitch sounds have fast vibrations with short wavelengths. The pitch of a note, called "frequency," is measured in the number of cycles per second (or hertz).

The usable range of hearing in a young, normally hearing adult extends (non linearly) from frequencies of 20 cycles per second through 20,000 cycles per second. There are more than 300,000 individual tones of differing frequency and intensity which may be distinguished by normal auditory sensitivity. With regard to intensity, the strongest sounds which we can hear without feeling physical pain are on the order of ten million, million (10,000,000,000,000) times greater than sounds that are just barely detectable within our most sensitive frequency range. Even though the human ear can hear frequencies from around 20 to 20,000 cycles per second, it cannot hear all pitches equally well. When modified by what is called an "A" weighting, the decibel (abbreviated dBA) corresponds more closely to how people perceive noise.



Figure 1-1

Relation of Hearing Ability to Frequency

Source: Quiet City Committee, Community Noise Control Training Guide and Enforcement Manual (Los Angeles: League of California Cities, January, 1973).

Any particular sound usually contains more than one frequency. Noise that has a wide range of random frequencies is referred to as "broad band noise." If the sound consists of only one frequency, it is called "Pure tone" noise.[1]

The volume of sound is measured by units of decibels, which is a logarithmic unit of measurement. This is a very convenient unit of measurement because of the great sensitivity of the human ear. The range of human hearing is equivalent to one to one-billion-billion ($1:10^{18}$). This would be far less convenient than working with decibels which range from 0 to 140.

Sound levels for the Regional Noise Element were measured with such instruments as a Brahl and Kjar Model 166B Classifier Sound Meter and General Radio Graphic Recorder. The measurements are all weighted on the "A" scale and are highly reliable for the time period and position in which the samples are measured. The noise samples were monitored by personnel Environmental Health Services of the Fresno County Department of Health.

Typical, everyday sound levels can range from around 30 dBA (very quiet) to over 100 dBA (very loud). Noise with "information content" such as speech or music will tend to be more distracting, even at lower levels, than steady broad band noise.

FIGURE 1-2

SOUND WITH INFORMATION CONTENT



Construction Noises

vs.



Speech

[1]Quiet City Committee, Community Noise Control Training Guide and Enforcement Manual (Los Angeles, California: League of California Cities, January 1973).

The degree which a sound exceeds the background noise is a measure of the intrusiveness of that noise. Background noise is also called "ambient"[2] noise. Because the decibel is a logarithmic unit of measurement, its behavior is unusual. As a sound level is increased or decreased by 10 dBA, it is perceived to be twice as loud or half as loud, respectively. That is 50 dBA is twice as loud as 40 dBA, but only half as loud as 60 dBA.

When noise from more than one source is being generated simultaneously, the correct decibel value can be obtained by using this decibel addition Table.

TABLE 1-1
DECIBEL ADDITION

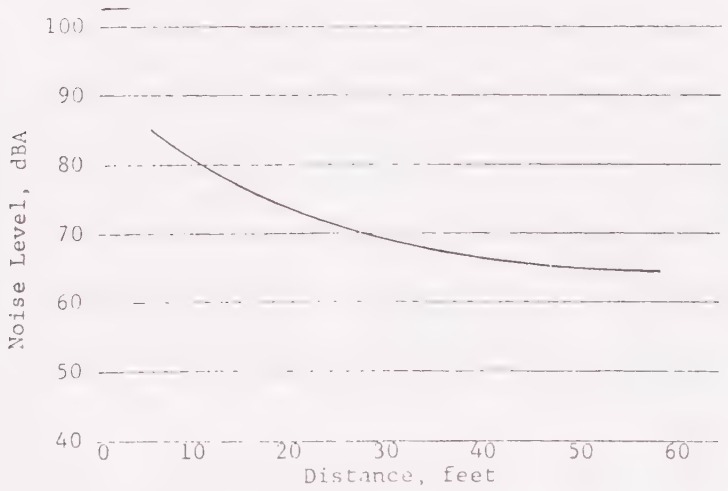
When two decibel values differ by	Add the following amount to the higher value
0 or 1 dB	3 dB
2 or 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0 dB

That is, 50 dBA + 50 dBA = 53 dBA
50 dBA + 54 dBA = 55 dBA

(Source: Bolt, Beranek, and Newman, 1973)

Sound levels appear quieter as the distance between the source and the receiver becomes greater. The mathematical relationship of sound level to distance is such that every time the distance from the source is doubled, the sound level goes down approximately six decibels.

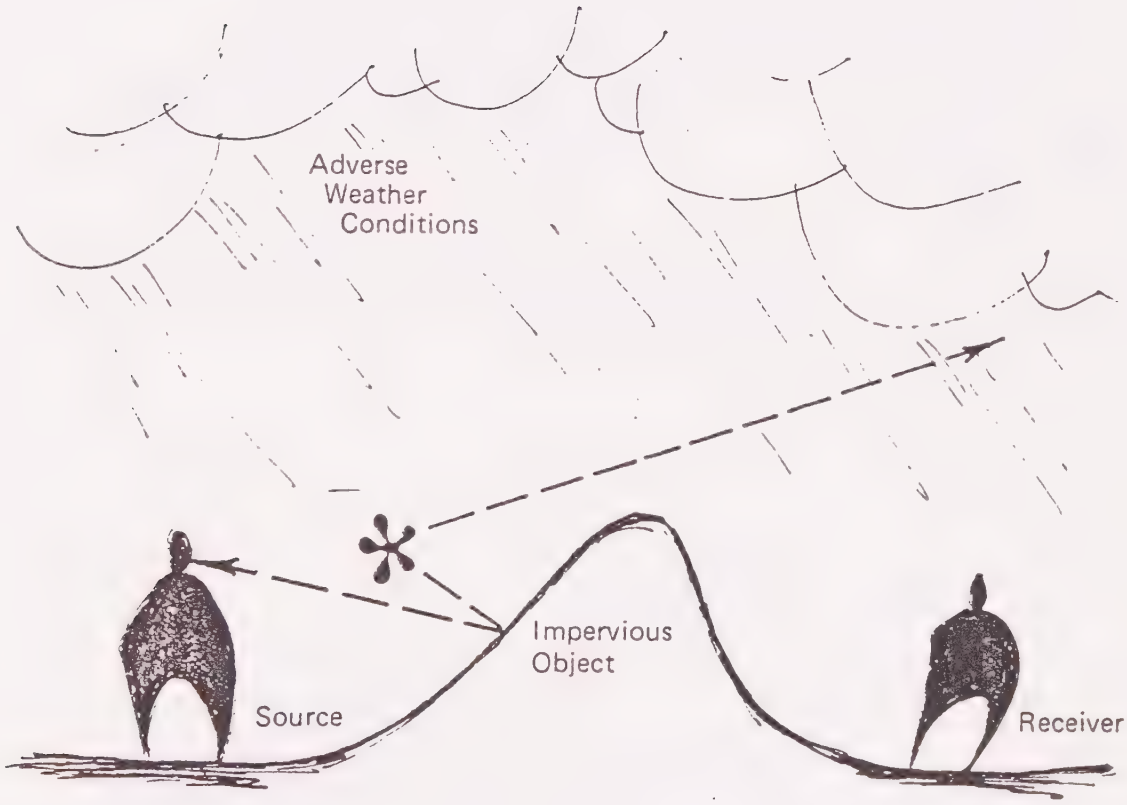
FIGURE 1-3
DECAY OF SOUND WITH DISTANCE



[2]Ambient Noise Level - The ambient noise level is that level which exists at any instant, regardless of source. Numerically this is defined as the level of noise exceeded fifty percent of the time (L_{50}).

Sound propagation is affected by wind, weather, and terrain. Extremes of wind, humidity, or obstructing or reflecting terrain features should be avoided when making noise measurements.

FIGURE 4



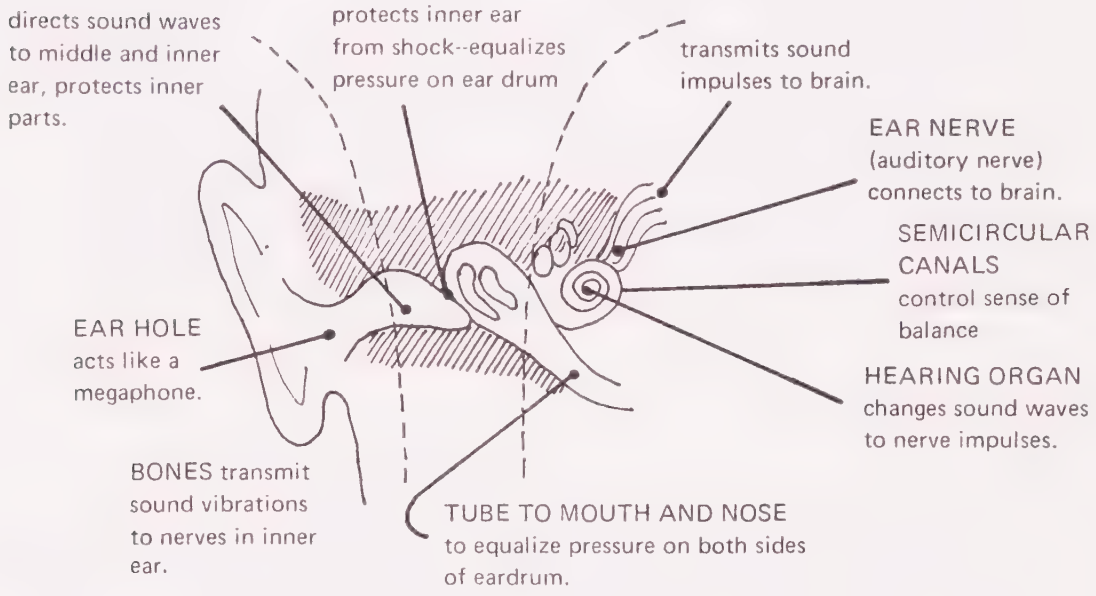
NATURAL FACTORS INFLUENCING SOUND PROPAGATION

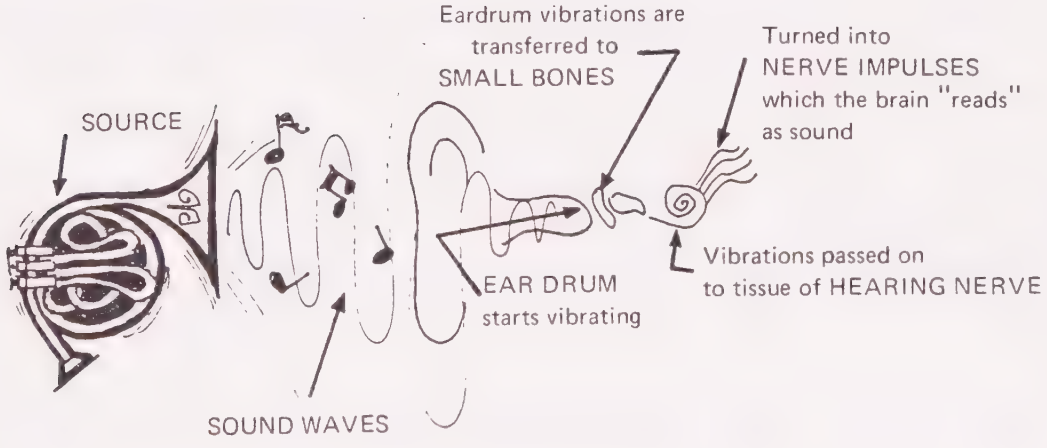
FIGURE 13.5

Sound pressure from any source of sound sends out vibrations (sound waves) which stimulate the auditory nerve which in turn sends impulses to the brain. Figures 11 and 12 illustrate in a simplified manner how the ear reacts to sound.

FIGURE 1-5

THE ELEMENTS OF SOUND





Source: Bete Channing, Noise and You, Greenfield, Massachusetts, Environmental Protection Agency, 1970.

To help provide a better understanding of decibels, Table 1-2 has been developed to show examples of various noise levels of common daily activities. It should be remembered that an increase of 10 dBA represents a doubling of the sound levels.

TABLE I-2

EXAMPLES OF VARIOUS NOISE LEVELS

	Decibels	
Jet Plane	140	Noises over 140 dB will cause physical pain
Gunshot Blast	140	
Sandblasting	112	
Pneumatic drill	100	
Hydraulic press	100	
Average Factory	80-90	Prolonged exposure to noise at 85 dBA will cause physical injury
Noisy Restaurant	80	
Busy Traffic	75	
Conversational Speech	65	Noise over 65 dBA interferes with normal conversation
Average Home	50	
Optimal Sleeping Level	35	

Direct Physiological Effects of Noise

The most pronounced, direct effect of excessive noise is hearing impairment. Noise-induced hearing loss raises an individual's "hearing threshold," - which is the degree of loudness at which he first begins to hear. This hearing loss generally occurs with noise levels between 85 dBA and 95 dBA after long periods of exposure.[3] The extent of the effects on hearing depends on the duration and frequency of exposure to the noise as well as upon certain elusive qualities which make some people more susceptible to noise-induced hearing loss than others.

An environment can contain daily brief duration noises of relatively high peak levels such as 100 or 110 dBA, without being as hazardous as a continuous (eight-hour-per-day) noise at a steady level of 55 dBA.[4]

Indirect Physiological Effects of Noise (Non-Auditory)

Most people have at one time or another felt fatigue which may be attributed to an unsatisfactory night's sleep. The preliminary research work of Dr. Jerome Lukas, psychologist at the Standord Research Institute, has investigated the effects of various pre-recorded environmental noises on sleep in man.[5] Monitoring

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[3]The acoustic areas of concern are between 300 cycles per second and 4800 cycles per second. Mayor's Task Force, Toward a Quieter City (New York City. 1970).

[4]Karl D. Kryter, Impairment to Hearing from Exposure to Noise (Menlo Park. California: Stanford Research Institute, 1972).

[5]Jerome S. Lukas, Predicting the Response to Noise During Sleep (Menlo Park. California: Stanford Research Institute, May, 1973).

both the on-going brain activity through electroencephalography (EEG), and the random, rapid eye movements associated with light, dreamful sleep via electronystagmography (ENG), the physiological effects of environmental noise of varied intensity and duration have been documented.

Preliminary observations by Dr. Lukas[6] have shown that it is possible, through a simulated and controlled noise-polluted environment, to actually partially rouse an individual from his essential deep dreamless sleep to lighter, sub-aroused states of sleep. A key observation here has been that those individuals who were exposed during a night's sleep to numerous instances of sub-arousal noise pollution could recall none of these noise sensations. The majority, however, spontaneously reported feelings of extreme fatigue the next day when compared with control conditions.

In essence, these findings suggest that we do not have to be awakened by noise pollution to suffer the consequences, in terms of physiological fatigue, the next day.

Sleep interference or deprivation also contributes strongly to anxiety, irritability, and difficulties in concentration, as well as many other common physiological stress symptoms such as changes in cardiovascular blood pressure and volume, breathing, pulse rate, and other neural body activities.[7]

Physiological stress reactions from noisy environments are often the result of frustration that occurs when the noise interferes with or distracts from some other activity. Differences among individuals tend to make noise more unsettling to some people than to others. The amount of annoyance can frequently be a direct function of the environment of human activity. A dripping faucet may not be heard during the preparation of dinner, but in the quiet of going to sleep it may be perceived as an awesome cascade of water.

The evidence is indeed overwhelming that labeling unwelcome noise "a benign nuisance" is a disservice to the rights of individuals. Anxiety, constrained and explosive rage, disturbed sleep, irritability, and concentration and energy-draining tensions, are direct and preventable results of noise in our region. They are clinically demonstrable and, in terms of the mental health of our region, should be resolved through legislative and educative measures. Even when people become accustomed to a noise and think that they are no longer bothered by it, they are actually expending a great deal of energy keeping it below the conscious level. Tension, irritability, and fatigue are the result.[8]

Governmental Standards and Guidelines for Noise

Even though noise levels are not at a critical stage in most of our planning area, measures should be taken to prevent serious problems from occurring, as noise levels tend to increase slowly with greater levels of urban development.

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[6]Ibid.

[7]Karl D. Kryter, "Non-auditory Effects of Environmental Noise," American Journal of Public Health, March 1972.

[8]City of New York, Environmental Protection Administration, The Noise We Hear in New York.

In these areas where noise levels are currently impacting sensitive areas, or will impact future development, then attenuation measures should be implemented.

Standards and guidelines for noise exposure levels have been proposed by various entities of governmental system. These include:

- United States Department of Housing and Urban Development (HUD) Guidelines
- United States Environmental Protection Agency (EPA) Recommendations
- California Administrative Code Title 25
- California Council on Intergovernmental Relations (CIR) General Plan Guidelines
- California Vehicle Code
- California Harbors and Navigation Code
- Federal Aircraft Regulation
- Prepared Federal Railway Regulations

This chapter discusses these standards and guidelines, and recommends compatibility standards for four land use categories.

United States Department of Housing and Urban Development (HUD)

The United States Department of Housing and Urban Development Guidelines are an evaluation of noise source exposure of transportation-related noise, specifically aircraft, roadways, and railways. This evaluation is ranked according to the following acceptability categories.[9]

"Clearly Acceptable-
The noise exposure is such that both the indoor and outdoor environments are pleasant.

Normally Acceptable-
The noise exposure is great enough to be of some concern but common building constructions will make the indoor environment acceptable, even for sleeping quarters, and the outdoor environment will be reasonably pleasant for recreation and play.

Normally Unacceptable-
The noise exposure is significantly more severe so that unusual and costly building constructions are necessary to ensure some tranquility indoors, and barriers must be erected between the site and prominent noise sources to make the outdoor environment tolerable.

Clearly Unacceptable-
The noise exposure at the site is so severe that the construction cost to make the indoor environment acceptable would be prohibitive and the outdoor environment would still be intolerable. The site's exposure to noise from each of these sources is evaluated according to the least favorable category found for that source. For example, if the assessment

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[9]T.J. Shultz and N. McMahan, Noise Assessment Guidelines, (Washington, D.C.: U.S. Department of Housing and Urban Development, August, 1971).

shows that the exposure to noise from three different sources is Clearly Acceptable, Normally Acceptable, and Clearly Unacceptable, then the site's exposure is Clearly Unacceptable.

The Noise Assessment Guidelines that Shultz and McMahan have reported for the United States Department of Housing and Urban Development are a useful layman's guide to dealing with noise exposure levels from transportation-related sources. When these guidelines are correlated with L_{10}[10] levels for highway traffic, however, the decibel levels that fall into the "normally acceptable" category are far from desired exposure levels. The decibel levels reached using the HUD Noise Assessment Guidelines are usually in excess of 70 dBA, and sometimes as high as 75 dBA. It should be remembered that sound level doubles with an increase of 10 decibels. The most common recommended outdoor noise level for prolonged exposure is 55 dBA. Because of the logarithmic nature of decibels, this (75 dBA) represents a quadrupling of the sound exposure levels considered desirable.

Another major criticism of the HUD Noise Assessment Guidelines is that they do not deal with the cumulative effects of noise coming from several different sources simultaneously. There is no methodology given for sound addition since the guidelines are not stated in specific decibel levels. Under such conditions, the decibel levels reached would be even higher than that correlated with the "normally acceptable" category.

It is also important to note that even though HUD will finance housing projects in areas with relatively high noise exposure levels, local communities still have to conform to the indoor noise level standards expressed in Title 25 of the California Administrative Code (CNEL 45 dBA) for multiple-family dwellings and the Regional Noise Element recommends that local communities require the same standards for single-family dwellings.

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United States Environmental Protection Agency

The Environmental Protection Agency (EPA) uses as its basic criteria those exposure levels associated with speech interference and the exposure level which would result in hearing loss over a period of 40 years. The following is a summary of the information provided by EPA. The noise levels expressed are recommendations, not Federal standards.[11]

Table A-1 in Appendix A identifies those levels considered to be necessary to protect public health and welfare with an adequate margin of safety from noise that affects both activity interference and hearing loss. The Table categorizes various areas according to the principal activities most likely to occur in each area. A brief description of each classification and a discussion of the basis for the recommended levels provided in the levels document are included in Appendix A.

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[10] L_{10} is the highest level of noise exceeded ten percent of the time.

[11] Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Washington, D.C.; EPA, March, 1974).

The L_{dn}, used by EPA, is a time-weighted scale applied to intense but intermittent noise exposure events which puts a mathematical penalty on noise events that occur during night hours. (See Appendix C for detailed explanation)

The L_{eq} is the equivalent L_{dn} A-weighted sound level over a given time interval. L_{eq} (24) is the sound level averaged over 24 hours. L_{eq} (8) would be the sound level averaged over 8 hours.

Equivalent Sound Level is formulated in terms of the equivalent steady noise level which in a stated period of time would contain the same noise energy as the more intense, but intermittent noise being weighted by L_{dn} during the same time period.

Because of the complex nature of L_{dn} and L_{eq}, the Regional Noise Element will evaluate community noise exposure in terms of L_{10}, which is simply the level of noise, as measured on a standard sound level meter, which is exceeded ten percent of the time.

California Administrative Code, Title 25

Title 25 of the California Administrative Code (dealing with building codes) establishes noise insulation standards which require that "interior community noise equivalent levels (CNEL)[12], with windows closed, attributable to exterior sources not exceed an annual CNEL of 45 dBA in any habitable room" of any dwelling other than detached single-family dwellings. If residential buildings or structures are to be located within a CNEL contour of 60 dBA of an existing or adopted transportation noise source, they are required by the State of California to have an acoustical analysis showing that the proposed building has been designed to limit intruding noise to the prescribed allowable interior noise level. Exception: Railroads, where there are no nighttime--(10:00 p.m. to 7:00 a.m.)--railway operations and where daytime--(7:00 a.m. to 10:00 p.m.)--railway operations do not exceed four per day.

This can be accomplished in a variety of ways including design and orientation of the residential structure, setbacks, shielding, and sound insulation of the building itself.[13] Title 25 is enforced by the local building inspector. Monitoring assistance can be obtained from Fresno County Environmental Health Services. Title 25, Article 4, has been included in full in Appendix B.

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[12]Community Noise Equivalent Level (CNEL) is a time weighted scale applied to intense but intermittent noise exposure events which puts a mathematical penalty on noise events which occur during evening or night hours. See Appendix C for detailed explanation.

[13]California Administrative Code, Title 25, Chapter 1, Subchapter 1, Article 4, Noise Insulation Standards.

California Council on Intergovernmental Relations (CIR)

The guidelines recommended 65 dBA as being the maximum noise exposure level (on a time weighted scale) from any particular source to which a community should be subjected. For certain sensitive receivers (schools, hospitals, convalescent homes, and parks) the maximum recommended noise exposure level on a time weighted scale is 45 dBA.[14]

The Government Code does not specifically state what levels should be adopted; these are left for each individual city (or the county) to decide.

For purposes of mapping clarity, the contours shown on the maps are the 65 dBA and the 55 dBA contours. These are the most useful as planning tools because of the nature of noise itself and the way in which sound decays over distance. In most cases, the contour which depicts the noise level to be 45 dBA is purely theoretical since the ambient noise levels are usally higher than 45 dBA. The methodology needed to mathematically project the 45 dBA contour has been included in the appendix as an informational item. The weighting scale used for these contours is L_{10}, the level of noise exceeded then percent of the time. This requires conversion of the 60 dBA CNEL level mandated by Title 25 of the California Administrative Code. The general formula is:

$$CNEL = L_{10} - 3dB - 5dB$$

This means that any proposed development located within the L_{10} 55 dBA contour should have an acoustical analysis clearly demonstrating that the proposed building has been properly designed in accordance with Title 25.

As planning tools, the contours shown on the maps are adequate to guide the site plan review process.

The CIR guidelines for noise are included in full in Appendix D.

California Vehicle Code

The California Vehicle Code states those permissible noise levels for all vehicles both on and off highway. The noise sections of the Code are included in Appendix E for reference. These noise levels are enforceable by the California Highway Patrol and local police department.

California Harbors and Navigation Code

The Harbors and Navigation Code contains the noise levels permissible for boats. The noise section of the Code is In Appendix F. In Fresno County, the levels are enforced by the Sheriff's Department on the Kings River, Shaver Lake, Huntington Lake, and Pine Flat Lake. Millerton Lake is the responsiblity of California Bureau of Parks and Recreation.

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[14]California Council on Intergovernmental Relations, General Plan Guidelines, Sacramento, California, September 1973.

Federal Aircraft Regulations

Regulations of aircraft noise is pre-empted by the Federal Govenment.[15] The regulations are applied to the aircraft as part of the type certification. "Compliance with Part 36 is not to be constured as a Federal determination that the aircraft is *acceptable*, from a noise standpoint, in particular airport environments. Responsibility for determining the permissible noise levels for aircraft using an airport remains with the proprietor of that airport. The noise limits specified in Part 36 are the technologically practical and economically reasonable limits of aircraft noise reduction technology at the tyime of type certification and are not intended to substitute federally determined noise levels for those more restrictive limits determined to be necessary by individual airport proprietors in response to the locally determined desire for quiet and the locally determined need for the benefits of air commerce.[16]

The Federal noise standards for individual aircraft are expressed i Effective Perceived Noise Level (EPNL) in units of EPNdB.

EPNL is an energy mean value for each single even at a specific location. It is not weighted on the "A" scale and does not consider multiple occurrences for noise events. EPNL therefore, is directly convertible to the Community Noise Equivalent Level (CNEL) used to develop contours around airport environments. The Federal aircraft standards are included in the Appendix G as an informational item.

Proposed Federal Railway Noise Standards

Regulation of railway noise is pre-empted by the Federal Government under subsection 17(c)(1) of the Noise Control Act of 1972. "No State or political subdivision thereof may adopt or enforce any standard applicable to noise emissions resulting from the operation of locomotives or railroad cars of surface carriers engaged in interstate commerce by railroad unless such standard is identical to the Federal standards." Subsection 17(c)(2) does not diminish or enhance the rights of any State or political subdivision thereof to establish and enforce standards or controls on levels of environmental noise if the Administrator of the Environmental Protection Agency, after consultation with the Secretary of Transportation, determines that such standard or control is necessitated by special local conditions and is not the conflict with regulations set forth under Section 17.

The proposed regulations do not in any way pre-empt State or local standards applicable to noise emissions resulting from the operation of any equipment or facility of interstate railroads which is not covered by Federal regulations. Thus, under the proposed regulations the States and

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[15] Federal Aviation Regulations Part 36, U.S. Department of Transportation. Federal Aviation Administration, June 1974. The noise levels permitted are included in Appendix G.

[16] Ibid.

localities will remain free to enact and enforce noise regulations on railroad equipment and facilities other than trains without any special determination by the Administrator. Only after a Federal regulation on noise emissions resulting from the operation of a particular type of railroad equipment or facility has become effective must the States and localities obtain a speical determination by the Administrator under subsection 17(c)(2) in order to adopt or enforce their own use restrictions or environmental noise limits on that equipment or facility.

Among railroad operations that can be regulated by local ordinances are regular yard terminal and siding operations. In addition to the noise caused by movement of equipment, refrigeration units generate up to 75 dBA at 50 feet and can be a problem if the car is in a stationary position located near sensitive receivers.

Locomotive Standard

"All locomotives to which this regulation is applicable are to meet the following noise emission standards under stationary test conditions:

1. Effective 270 days from the date of promulgation of these regulations locomotives tested singularly shall not exceed 93 dBA at any throttle setting and 73 dBA at idle when measured at 30 meters (100 feet) over any surface.

2. Effective four years from the date of promulgation of these regulations locomotives tested singularly shall not exceed 87 dBA at any throttle setting and 67 dBA at idle when measured at 30 meters (100 feet) over any surface.

Similarly, all locomotives or combination of locomotives to which this regulation is applicable, are to meet the following noise emission standards under moving conditions:

1. Effective 270 days from the date of promulgation of these regulations, 96 dBA when moving at any time under any condition or grade, load, acceleration, or deceleration as measured over any surface at 30 meters (100 feet).

2. Effective 4 years from the date of promulgation of these regulations, 90 dBA when moving at any time under any condition of grade, load, acceleration or deceleration as measured over any surface at 30 meters (100 feet).

Railroad Car Standard

Effective 270 days from the date of promulgation of these regulations, all railroad cars or combination of railroad cars operated by surface carriers engaged in interstate commerce by railroad are to meet a noise emission standard of 88 dBA at speeds up to and including 72 km/hr (45 mph) and 93 dBA at speeds greater than 72 km/hr (45 mph) when measured at 30 meters (100 feet) over any surface.[17]

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[17]Noise Control Act of 1972 (these proposed regulations appeared in the Federal Register July 3, 1974).

CHAPTER II
EXISTING CONDITIONS IN THE FRESNO COUNTY REGION

Introduction

There are many noise-generating sources throughout the Fresno County Region in addition to those specified in the Regional Noise Element. Many of these generators are seasonal in nature because of their relationship to agriculture. It was not possible within the scope of this study to do on-site monitoring of every stationary generator throughout Fresno County, but every effort was made to monitor those sites which were known to be problems. It is fully realized that there are many other problem areas than those which have been identified here.

At the community level of analysis, the Regional Noise Element focuses on the critical receivers and the major transportation generators in each community. In addition, on-site monitoring was done at those stationary sites requested by the administrative official of each city.

At the regional level of analysis, the Regional Noise Element is concerned with the network of State Highways, the network of the rail line, and major airports Although there are many stationary generators and critical receivers (schools, hospitals, convalescent homes, and parks) located throughout the region, it is beyond the scope of this report to analyze each one at this time. For any specific problem that exists, requests can be made to Fresno County Environmental Health Services for on-site monitoring of the area to determine the magnitude of the problem.

Methodology

The contours that have been developed for the region are mathematically projected to produce computed estimates of the noise levels. These estimates do not account for local effects of barriers, road and bed grades. The procedures used are sufficient for the purposes of contours and for use in environmental impact assessment.

The mathematical methodology for projecting noise levels from road and rail traffic is summarized in Appendix H. The contours for the Fresno Air Terminal and Fresno Chandler Field are taken from Airport Master Plan, 1971 by Peat, Marwick & Mitchell. The contours for the proposed Coalinga Cargo Port are not available at this time, and the contours for Lemoore Naval Air Station are presently being re-analyzed and will be available at a later time.

In addition, California Government Code Section 65302(g) requires 45 dBA noise contours for regions involving hospitals, rest homes, long-term medical or mental care and outdoor recreational areas. As development of these contours was not practical, it was decided to determine the daytime ambient noise conditions in each of these areas instead, and the sites were selected accordingly. In addition, industrial monitoring sites were selected on the basis of a request from the city administrator of the subject cities.

The mobile noise monitoring vehicle operated by the Environmental Health Services limits the distance the monitoring microphones can be placed from the vehicle, so all microphone sites were approximately 10 feet from the vehicle. Where driveways or parking lost were available, the vehicle was parked approximately 100 feet from the nearest roadway, these distances varying with the site characteristics. Where the mobile monitoring vehicle was restricted from parking near the receiver because of site design, the vehicle was parked at the curb and the microphone was made to locate where the passage of individual cars

or trucks would not drastically change the ambient noise level, and the monitoring period was stopped or shortened when abnormal noise sources (thus lawn mowers) occurred.

Monitoring Procedure

All sites were monitored with a Bruel and Kjaer Model 166-B Environmental Noise Classifier, an acoustical amplitude analyzer which classifies noise levels into amplitude bands from which ambient noise levels can be determined by interpolation. The instrument was calibrated prior to each monitoring period by a Bruel and Kjaer Type 4230 Sound Level Calibrator, and each site was continuously monitored for thirty (30) minutes unless abnormal occurrences forced shortening of the monitoring period. Power was supplied by the automobile battery and transformed from 12 volt D.C. to A.C. by a General Cement Inverter Model No. 26-910.

The 30 minute noise level recording was used to represent the noise environment for a one hour period. Recent statistical analysis by the Department of Transportation (CALTRANS) and Fresno County Environmental Health Services has shown that a 15 minute monitoring period is a valid representative sample of a one hour period, so the 30 minute monitoring period should also be judged to be a valid sample.

The number of each facility on the table corresponds with the number on the accompanying maps. The date is the day that facility was monitored. The noise levels for interval receivers, stationary generators, and highways are given in L_{10}, the highest level of noise exceeded ten percent of the time. The noise levels for railways are given in L_{dn}. This is a composite scale which reliably depicts annoyance factors from sources having an intense noise with sporadic occurrences.

For purposes of mapping clarity, only the 65 dBA and 55 dBA contours are shown on the maps. The distances from the noise generator to the indicated contour are given in Appendix I.

CITY OF CLOVIS

Existing Conditions

Industrial land use in Clovis is distributed throughout the city with concentrations in the northern and southern fringes of the City, as well as to the east of Clovis Avenue (State Highway 168). Parallel to the east of Clovis Avenue runs a railroad operated by Southern Pacific. The railroad, along with route 168, are two major noise generators in the community. A third major noise generator is the concrete mix plant located on Fowler and Route 168.

Commercial land use is concentrated along route 168 (Shaw, Clovis Avenues) and in the Central Business District (CBD) bound by Clovis, 3rd, 11th, and Woodworth Avenues. Additional small scale commercial land use is located near major streets.

Major residential areas are located to the west of the CBD downtown, the Southern part of Clovis, and to the East and Northeast of the CBD. High density residential is located south of Shaw Avenue and West of Minnewawa.

Problem Identification

Problem areas that affect sensitive receivers in the City of Clovis are the corridors of Shaw Avenue, Clovis Avenue, Southern Pacific Railroad, flight paths out of Fresno Air Terminal, the stationary industrial sources that parallel Highway 168, and the concrete mix plant near Sierra & Tollhouse.

Table 2-1 shows the results of the on-site monitoring survey conducted in Clovis. These sites are located on Map 2-1 along with the contours of those generators which are presently known.

CITY OF COALINGA

Existing Conditions

Commercial land use in Coalinga follows closely the alignment of State Highway 198. Much of the commercial area consists of the Central Business District (CBD), and little commercial development is found outside the central area. The industrial district is found south of the CBD bisected by Route 198 and south of Jayne Avenue (Route 33). Another industrial district is located northeast of the City near Los Gatos Creek. The City sewage treatment plant is found approximately 1 mile east of the CBD.

The residential area of Caolinga is found around the CBD and generally to the northwest and southeast of the commercial district. The major educational facilities (elementary, junior high, and high schools, as well as the West Hills Junior College) are located north of the CBD and south of the Coalinga Municipal Airport. The hospital in Coalinga is found near these educational facilities. There is a convalescent home in the northwest part of the City. The civic center is located in the CBD.

The main transportation corridors in Coalinga are Routes 168 and 33, both major noise generators. Route 198 runs north/south through the CBD and industrial areas of the City. Route 33 comes in from the east through the southeastern residential area of Coalinga and joins with Route 198 in the CBD. The other major noise generator in Coalinga, a rail line, runs parallel to Route 198, out of the CBD, through commercial and industrial land uses. The Coalinga Municipal Airport is located approximately 1 mile north of the City, west of Route 198.

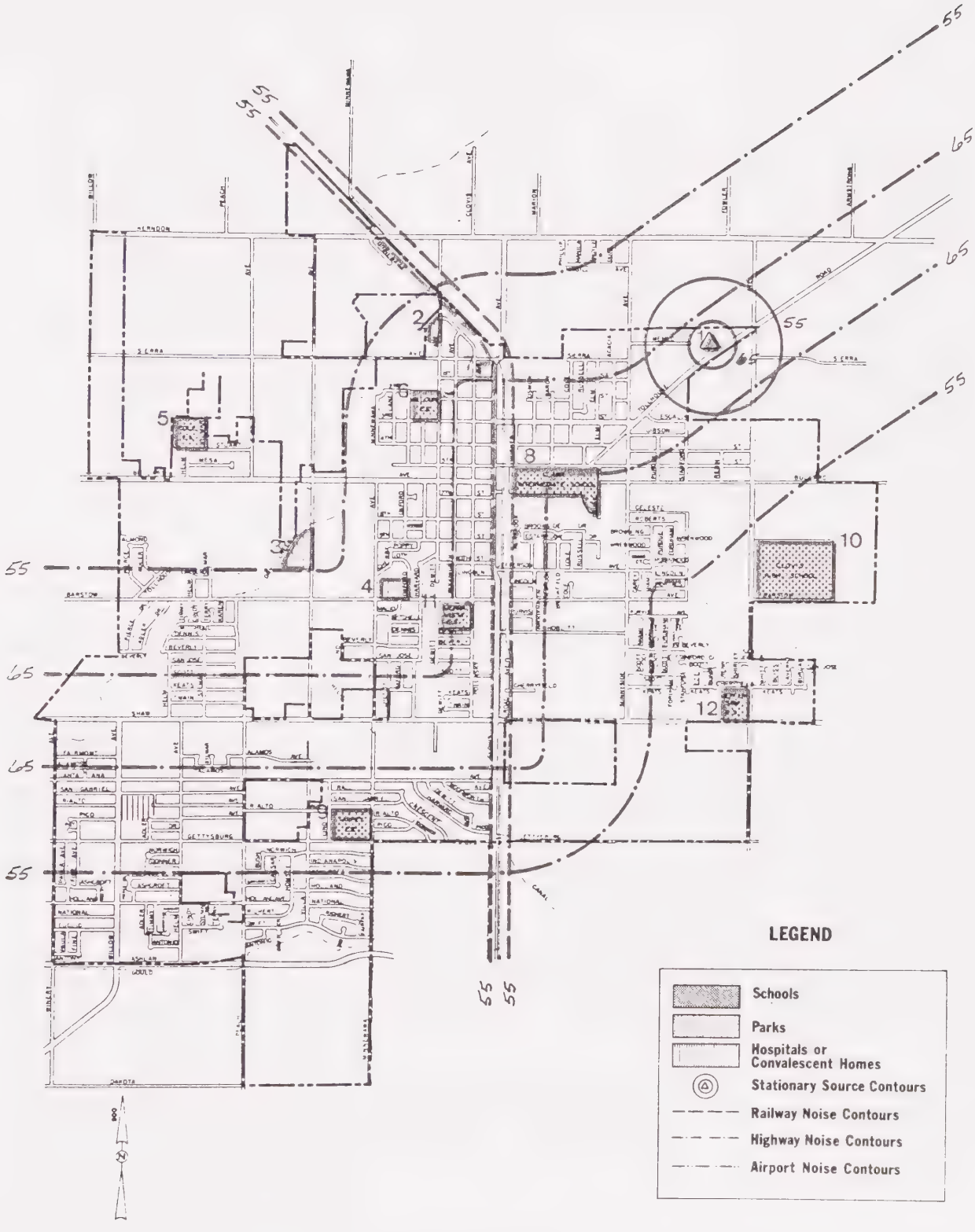
Problem Identification

Problem areas that affect sensitive receivers in the city of Coalinga are the corridors of Highways 198 and 33, the Southern Pacific Railroad, the industrial areas southwest of the City, and in the future, the possibility of noise from the proposed Air-Cargo Port.

TABLE 2-1

CITY OF CLOVIS

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Clovis Ready Mix	Sierra & Tollhouse	9/30/74	>72	61.2	L_{10}=traffic
2	Clovis Hospital	DeWitt & First	9/30/74	59.6	50.1	
3	Letterman Park	Villa & Bullard	9/30/74	59.8	49.8	
4	Convalescent Hospital	Minnewawa & Barstow	9/30/74	62.4	53.4	Airport traffic
5	Cole Elementary	Helm & Stuart	10/3/74	54.9	48.6	Compressor
6	Weldon Elementary	Third & DeWitt	10/1/74	60.4	48.1	Children
7	Treasure-Ingmire Park	Sierra & Russell	10/1/74	52.8	45	
8	Clark Junior High	Baron & Fifth	10/1/74	59.7	54.5	Near Industrial Area
9	Tarpey Elementary	Gettysburg & Minnewawa	10/1/74	57.6	51.5	Children
10	Clovis High School	Fowler & Barstow	10/1/74	49.8	<45	
11	Sierra Vista Elementary	Barstow & Pollasky	10/8/74	52.6	<45	
12	Jefferson Elementary	Shaw and Fowler				



MAP 2-I

CLOVIS

Prepared by: Council of Fresno County Governments

Table 2-2 shows the results of the on-site monitoring survey conducted in Coalinga. These sites are located on Map 2-2 along with the contours of those generators which are presently known.

TABLE 2-2

CITY OF COALINGA

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	City Park	Polk & Garfield	8/22/74	57.9	45	Truck traffic
2	Coalinga Hospital	Washington & Sunset	8/22/74	50.9	45	
3	West Hills College	Elm & Walnut	8/22/74	59.1	48.8	Truck traffic
4	Convalescent Home	634 Maple	8/22/74	50.1	45	
5	Residential	225 South Coalinga	8/22/74	58.0	48.5	
6	Bishop Airway School	Sunset Boulevard	8/22/74	57.0	49.0	

CITY OF FIREBAUGH

Existing Conditions

Industrial land use in Firebaugh is located exclusively south of State Highway 33, a major noise generator in the community. South and parallel to Route 33 is a main line railroad owned by Southern Pacific Railroad, the other major noise generator in Firebaugh. Commercial development is found both north and south of Route 33, concentrated in the Central Business District (CBD) of Firebaugh. The existing civic center is located in the CBD.

Residential development in Firebaugh is found in the northern fringe of CBD and to the northwest and southeast of the town center, between Route 33 and the San Joaquin River. The educational section of the City consisting of elementary, junior high, and private schools is situated in the northeastern corner of the City Limits.

The City sewage treatment plant is located north of the northwestern residential area along the San Joaquin River. The Firebaugh Airport is found south of Route 33 in the industrial area west of Ness Avenue.

Problem Identification

Problem areas in Firebaugh are the corridor of the Southern Pacific Railway and Highway 33, and the packing houses.

MAP 2-2

COALINGA

Prepared by: Council of Fresno County Governments

Table 2-3 shows the results of the on-site monitoring survey conducted in Firebaugh. These sites are located on Map 2-3 along with the contours of those generators which are presently known.

TABLE 2-3

CITY OF FIREBAUGH

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Mills School	12th & "P" Street	8/8/74	60.8	52.6	Streetsweeper
2	Downtown Park	14th & "O" Street	8/9/74	61.7	58.1	Construction
3	School Complex	16th & "Q" Street	8/9/74	61.6	51.6	
4	City Park	15th & "Q" Street	8/9/74	59.7	52.6	

CITY OF FOWLER

Existing Conditions

Industrial land use in Fowler is located in a northwest/southeast corridor bound by Freeway 99 on the south and Golden State Boulevard on the north. Both of these highways, as well as a railroad parallel to the Golden State Boulevard, are the major noise generators in Fowler. An industrial area is being developed in the southeastern portion of the City.

Commercial development is concentrated on Merced Avenue, which runs northeast/southeast perpendicular to Freeway 99 and the Golden State Boulevard. The Central Business District (CBD) is approximately 1/4 mile northeast of Freeway 99 on Merced Avenue. The Fowler civic center is found in the CBD. All the educational facilities can be found in the northern portion of the City intermixed with residential land use.

The two major residential areas are south and north of the industrial corridor. One area is found southwest of Freeway 99 and the second major residential area is located northeast of the CBD. Some residential land use is found found north and south of the commerical development on Merced Avenue in the industrial corridor.

Problem Identification

Problem areas in Fowler are the corridors of Highway 99, the Southern Pacific Railroad, Golden State Boulevard, and the stationary industrial packing houses.

MAP 2-3
FIREBAUGH

Prepared by: Council of Fresno County Governments

Table 2-4 shows the results of the on-site monitoring survey conducted in Fowler. These sites are located on Map 2-4 along with the contours of those generators which are presently known.

TABLE 2-4

CITY OF FOWLER

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Nursing Home	Tulare & 5th Street	6/7/74	49.0	45.0	
2	Packing House	7th & Vine St.	6/7/74	69.2	56.0	Compressor Noise
3	Hospital	Merced & 3rd	6/7/74	59.1	54.7	
4	Park	Merced & 2nd	6/7/74	59.2	51.1	
5	School	Adams & 5th	6/7/74	59.9	53.8	
6	School	Main & 2nd	6/7/74	59.5	45.0	
7	School	Adams & Armstrong	6/7/74	59.9	51.3	

CITY OF FRESNO

Existing Conditions

The Fresno-Clovis Metropolitan Area (FCMA) has a diverse composition of land uses.

A number of industrial concentrations are found within the FCMA. Major locations are at or near southeast Fresno, the Central Area, Fruit and Church Avenues, Blackstone and McKinley Avenues, Maple and Olive Avenues, the Fresno Air Terminal, Clovis, Pinedale and the northwest along Freeway 99.

Two rail companies, Southern Pacific and Santa Fe Railroads, are currently operating in the FCMA. The Southern Pacific Railroad runs almost parallel to Freeway 99 and major streets and along industrial districts. In contrast, the Santa Fe Railroad cuts through residential districts.

Three airports exist within the FCMA. They are the Fresno Air Terminal, Fresno-Chandler Municipal Airport and the Sierra Sky Park. Fresno Air Terminal is a heavily used commercial airport (including military and commercial jet aircraft) with an activity level of approximately 600 operations a day. The takeoff pattern from Fresno Air Terminal necessitates low altitude flight over residential, commercial and industrial areas. This is not the case for departures from Fresno-Chandler Municipal Airport and Sierra Sky Park. Fresno-Chandler Municipal Airport has an activity level of approximately 300 operations per day. Sierra Sky Park has approximately 100 operations per day.

The Fresno Central Area is the dominant center of commerce. It is the primary location for governmental agencies, financial institutions, professional offices and the Central Business District (CBD).

MAP 2-4
FOWLER

Prepared by: Council of Fresno County Governments

In addition to the CBD, two commercial centers provide regional shopping facilities. They are the Manchester and the Fashion Fair shopping centers, respectively.

Community and neighborhood shopping facilities are scattered throughout the community. These facilities specialize more in day-to-day necessities.

General and heavy commercial uses are primarily single family housing. The rate of multifamily housing growth has been increasing. Residential development has primarily radiated outward from the Central Area of the City of Fresno with the predominant growth being to the north and east.

Problem Identification

Recognizing the potential effects of noise on the health and welfare of FCMA residents, local legislation has been enacted to preserve a livable environment.

The building codes of the City of Fresno, City of Clovis and Fresno County have adopted the noise insulation standards as set forth by Title 25 of the California Administrative Code. (See discussion in Chapter One.)

The noise ordinance of the Municipal Code of the City of Fresno, Section 8-301, designates ambient noise levels for various land use districts at different times of the day. Any noise exceeding the ambient noise level by more than five decibels is prohibited. It also protects the noise sensitive areas from unreasonable interference and unduly annoyance. However, construction, repair or remodeling works are exempted between the hours of 7:00 a.m. and 10:00 p.m. on any day except Sunday. Emergency work is totally excempted. This ordinance is currently enforced by the Building Safety and Consulting Services Section of the Department of Planning and Inspection.

Specifically related to the Fresno-Clovis Metropolitan Area, these problems are discussed below:

1. Road Traffic

   The level of noise emission by motor vehicles can be associated with the volume of road traffic. Within the FCMA most of the major streets and highways are well congested. Freeway 99 is a major freeway that runs through downtown Fresno. Freeway 41 (Blackstone) leads to Yosemite National Park. Highway 180 provides access to the Kings Canyon and Sequoia National Parks. The average per day traffic volume of the urban segment of these roadways is between 20,000 to 44,000.

   The Major street network is the FCMA is in the form of a gird system with arterial and collector alternates every one-half mile. Due to urban growth, developments are dispersed throughout the metropolitan area. Therefore, most of the major streets carry a heavy volume of traffic and create noise problems for the nearby residents. First Street, Fresno, Cedar, Shields, Clinton, McKinley, Belmont, Shaw, and Herndon Avenues, are some of the major streets with heavy traffic volumes and serious noise emission problems.

2. Rail Traffic

Two major rail companies serve the FCMA. They are the Southern Pacific Railroad and the Santa Fe Railroad. Most of the railroads tracks are parallel with major streets and highways.

Southern Pacific lines run along Freeway 99, California, Clovis and between Belmont and Nielsen Avenues. A spur line of the Southern Pacific serves the industries near Pinedale.

The Santa Fe Railroad deviates from the street pattern and traverses diagonally through the Bullard and Fresno High Communities.

The impact of rail traffic noise depends on the number of operations per day, the time of day and the duration of each operation. It also depends on the sensitivity of land uses along the railroad.

3. Air-Traffic Noise

The Fresno Air Terminal is a major contributor to intense environmental noise. This is due to frequent operations and the characteristics of high frequency noise, especially from jet aircraft, during landings and takeoffs. Chandler Municipal Airport and Sierra Sky Park provide only minor noise impacts on their surrounding environments.

4. Noise-Sensitive Areas

Schools, hospitals, convalescent homes, residences and parks are considered sensitive noise receivers. These sensitive noise receivers should be adequately protected from excess noise. Unfortunately, the transportation system and industrial and commercial facilities are scattered throughout the urbanized area. Some of the noise-sensitive receivers have already been exposed to excess noise levels.

One of the difficulties existing in noise problem identification is the lack of data. Although noise contours are available for highways and freeways for the Fresno-Clovis Metropolitan Area from the State Department of Transportation (CALTRANS), contours for most of the major streets, industrial districts, shopping centers and utility stations within the metropolitan area have not been developed. It is anticipated that these contours will be developed as the Noise Element is implemented and updated.

Another problem stems from codes and ordinances. Title 25 of the California Administrative Code protects hotels, motels, apartment houses and dwellings other than detached single-family dwellings from excessive noise levels. This protection is provided by noise insulation standards. Because detached single-family dwellings are excluded from regulations, they are not as well protected from noise as other types of dwelling units.

The City of Fresno Noise Ordinance, although providing for the designation of ambient noise levels for various land use districts, does not provide specific performance standards related to types of zoning. The lack of "specificity" in this ordinance limits its effectiveness.

Educational programs about the harmful effects of noise are needed. People are concerned with noise as a nuisance, but few realize the impacts and damages that it has on their health.

TABLE 2-5

CITY OF FRESNO

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Herdon Elementary School	N. Grantland & W. Sierra Avenues				
2	Roosevelt Elementary School	N. Garfield & W. Shields Ave.				
3	Figarden Elementary School	N. Brawley & W. Escalon Avenues				Note: this information was not available at the time this document was printed.
4	Teague Elementary School	N. Polk Ave. & S.P.R.R.				
5	El Capitan & Mckinley Elementary Schools	N. Blythe and W. McKinley Avenue				
6	Madison Elementary School	S. Brawley & W. Madison Avenues				
7	West Park Elementary School	W. North & S. Valentine Ave.				
8	Nelson School	W. Birch Ave.				
9	Starp Elementary School	N. West and W. Sierra Avenues				
10	Malloch Elementary School	N. West and W. Bullard Avenues				
11	Tenaya Junior High School	N. Fruit and W. Bullard Avenues				
12	Bullard High School & Gibson Elementary School	N. Palm and W. Barstow Avenues				
13	Bullard Elementary School	N. Palm and W. Shaw Avenues				
14	Slater Elementary School and Park	N. Marks and W. San Gabriel Avenues				
15	Wawona Junior High School	W. Bellflower & N. Thorpe Avenues				

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
16	Power Elementary School	W. Swift & N. Palm Avenues				
17	Woodrow Wilson Elementary School, Junior High School, and Park	N. Hughes & W. Ashlan Avenues				
18	Elementary School	N. West & W. Dakota Avenues				
19	Daily Elementary School	N. Harrison & W. Shields Avenues				
20	Hamilton Junior High School	N. Palm & W. Clinton Avenues				
21	Homan Elementary Schools	N. Crystal and W. Princeton Avenues				
22	Fremont Elementary School	W. Elton Avenue				
23	Fresno High School	W. Welton Avenue				
24	Convalescent Hospital	Hwy. 99 and W. Welton				
25	Adams Elementary School	W. McKinley & Hughes				
26	St. Agnes Hospital	W. Wine Avenue				
27	Rest Home	E. Olive & Locker Avenues				
28	Roeding Park	Hwy. 99 & W. Belmont Avenue				
29	Teilman Elementary School	W. Neilson & Teilman				
30	Columbia Elementary School	E. Stanislaus Ave. and A St.				
31	Rest Home	W. Madison & S. Fruit Avenues				
32	Bethune Elementary School and Neilson Playground	S. Fruit and W. Eden Avenues				
33	Sunset Elementary School	S. West & W. Myers Ave.				

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
34	Franklin Elementary School	Fresno St. & Martin Avenue				
35	Edison High School & Irwin Junior High School	E. California & E. Florence Avenue				
36	Western Elementary School	S. Fruit and W. Annadale Avenues				
37	Woodward Park	N. Grant & E. Shepard Avenues				
38	Pinedale Elementary School	San Pablo Ave. & W. Locust St.				
39	Hospital	E. Hephlon & N. First Street				
40	Kratt Elementary School	N. Palm & W. Sierra Avenues				
41	McCardle Elementary School	E. Sierra & N. Fresno Avenues				
42	Eaton Elementary School	E. Sierra and N. Millbrook Avenues				
43	Awaknee Junior High School	N. First and E. Bullard Avenues				
44	Convalescent Hospital	E. Bullard and N. Fresno Avenues				
45	Robinson Elementary School	E. Wrentwood and N. Fresno Avenues				
46	Hoover High School	E. Barstow & N. First Avenues				
47	Convalescent Hospital	E. Barstow and W. Fresno Avenues				
48	Baird Elementary School	W. Barstow and N. Maroa				
49	Wolters Elementary School	N. First and E. San Jose Avenues				
50	Tioga Junior High School	E. Fairmont and N. First Avenues				
51	Holland Elementary School and Park	E. Gettysburg and N. Fresno Avenues				

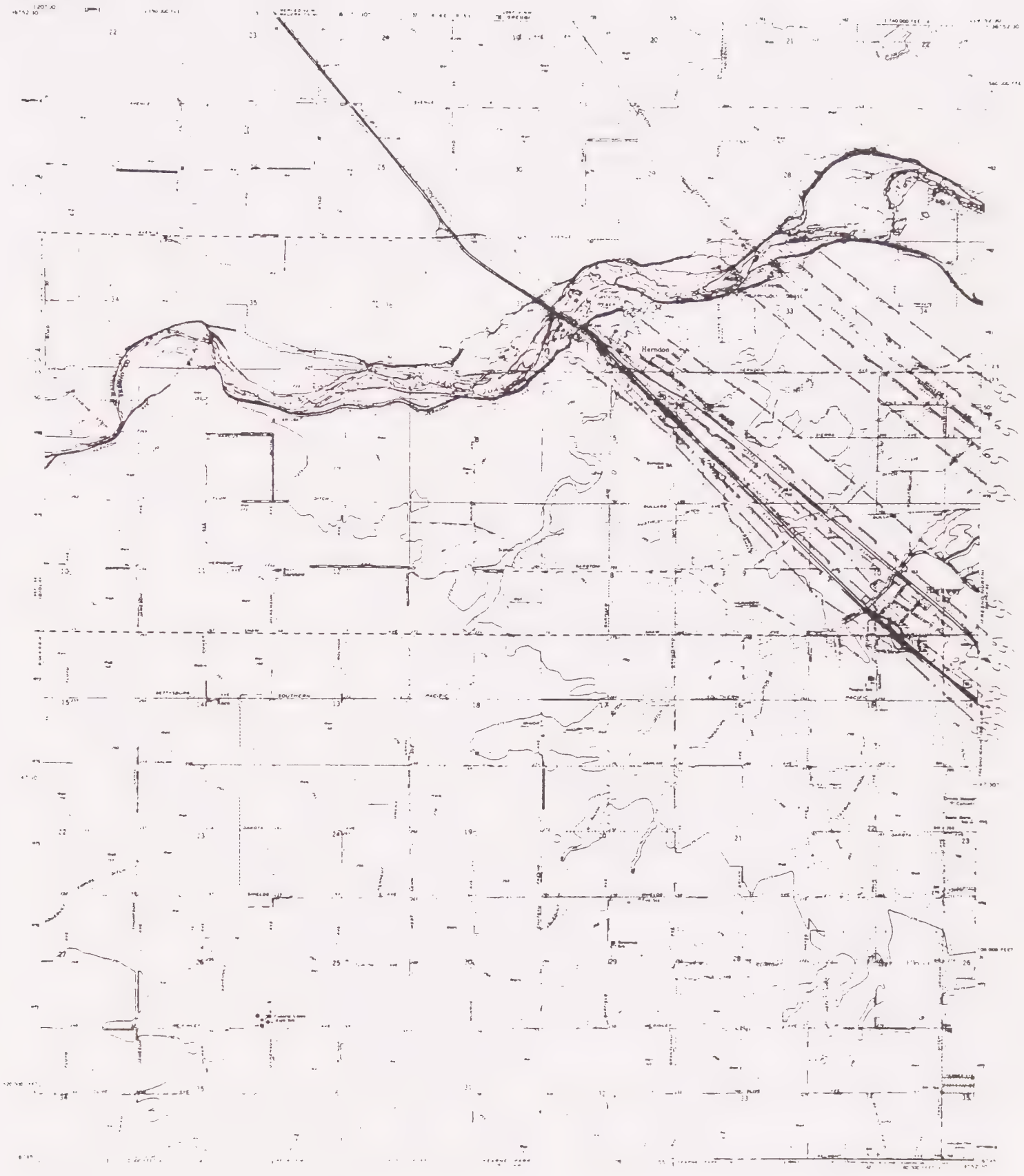
No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
52	Convalescent Hospital	N. Blackstone & E. Ashlan				
53	Park	E. Gettysburg & N. First				
54	Thomas Elementary School and Park	N. Millbrook and E. Gettysburg				
55	Centennial Elementary School	N. Millbrook and E. Dakota				
56	Pyle Elementary School and Park	N. Fresno & E. Ashlan				
57	Sierra Hospital & Manchester Elementary School	N. Fresno & E. Dakota				
58	Del Mar Elementary School	N. Blackstone & E. Ashlan				
59	Fort Miller Junior High School	N. Blackstone & E. Dakota				
60	Convalescent Hospital	N. First & E. Dakota				
61	Park	N. Millbrook & E. Dakota				
62	Wilson Elementary School and Mclane High School	N. Cedar & E. Princeton				
63	Convalescent Hospitals and Valley Childrens Hospital	N. Millbrook and E. Shields				
64	Birney Elementary School	N. First and E. Princeton				
65	Veterans Hospital	N. Fresno & E. Simpson				
66	Convalescent Hospital	N. Fresno & E. Simpson				
67	Lafayette Elementary School	N. Blackstone & E. Clinton				
68	Fresno City College	N. Maroa and E. Weldon				

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
69	Radio Park and Convalescent Hospital	N. First and E. Clinton				
70	Yosemite Junior High School	N. Eleventh and E. Floradora				
71	Elementary School	N. First and E. McKinley				
72	San Joaquin Memorial High School	N. Fresno and E. McKinley				
73	Heaton School	San Pablo & E. McKinley				
74	Rest Home	N. Echo & E. Olive				
75	Rest Home	N. Fulton and E. Belmont				
76	Rest Home	N. Van Ness and E. Alhambra				
77	Webster School & Tehipite Junior High School	N. Fresno & E. Belmont				
78	Park	N. Orchard & E. Harvey				
79	Rest Home	N. Fifth and E. Olive				
80	Powell Elementary School	N. Sixth & E. McKenzie				
81	Jefferson School	N. Fresno & E. Nevada				
82	Rest Home	N. Fresno & E. Belmont				
83	Rest Home	N. Calaveras & E. Belmont				
84	School	N. Park and E. Nevada				
85	Rest Homes (3)	N. Fulton and E. Franklin				
86	Rest Home	H Street & Fresno				

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
87	Courthouse Park	Fresno & Van Ness				
88	Hospital and Convalescent Hospital	Fresno and R Street				
89	Rest Homes and Convalescent Hospital	Tulare and U Street				
90	Park	N. First and E. Huntington				
91	Rest Home	S. Second and E. Ventura				
92	Jackson School	S. Seventh and E. Platt				
93	Roosevelt High School and Fresno County Medical Center	E. Huntington and S. Cedar				
94	Winchell School and Convalescent Hospital	E. Butler and S. Eighth				
95	Elementary School	C Street & Ventura				
96	Rest Home and Sequoia Junior High School	S. Cedar and E. Hamilton				
97	Kirk Elementary School	E. Church and S. Lilly				
98	Carver Elementary School	E. Grove and S. Fig				
100	Ivy Elementary School	E. Chester & S. Ivy				
101	Orange Center Elementary School	S. Cherry and E. Central				
102	Rest Home	E. Sierra & N. Villa				
103	Vineland Park and Elementary School	E. Gettysburg and N. Maple				
104	Viking Elementary School	E. Ashlan and N. Chestnut				

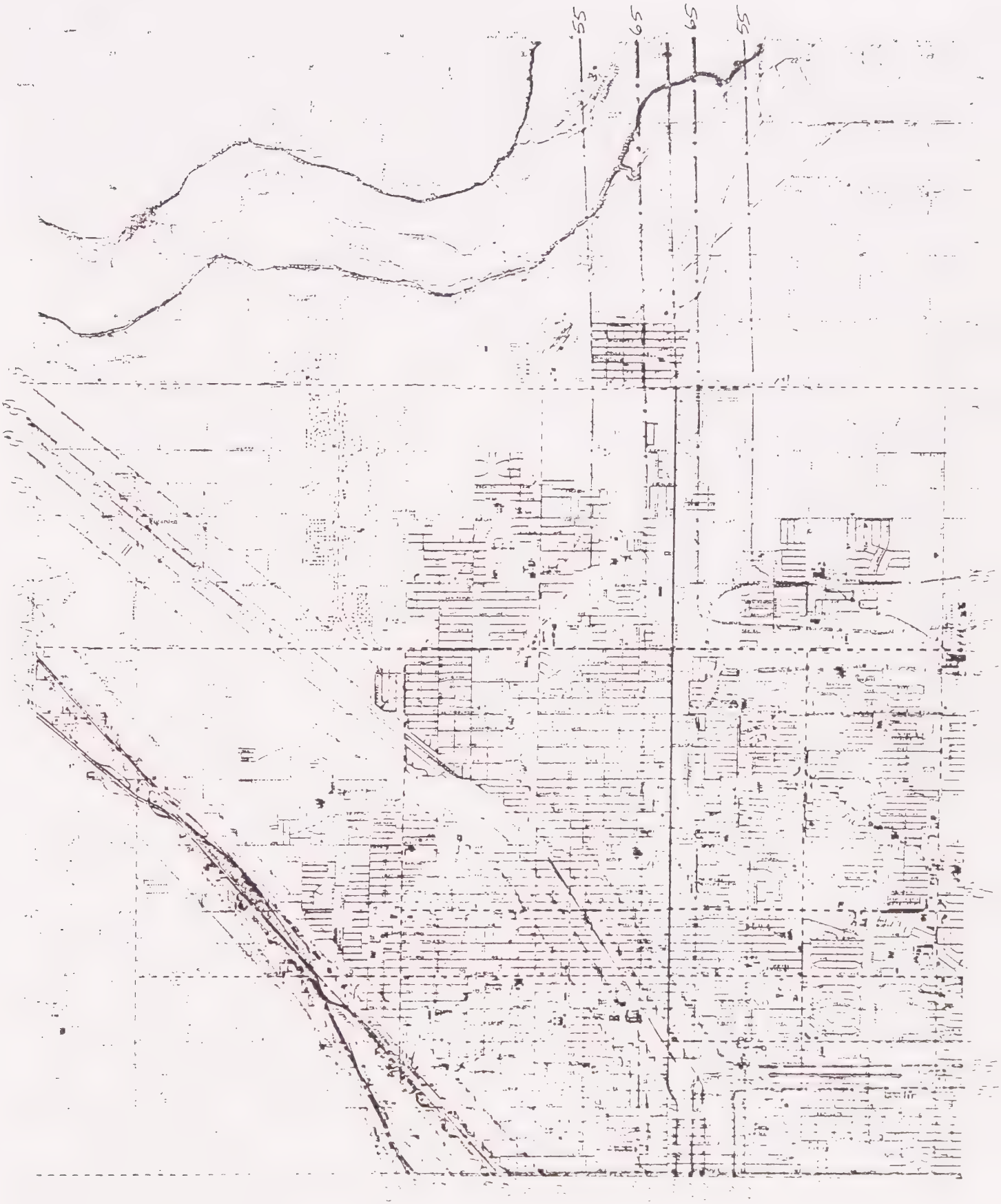
No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
105	Scandinavian Elementary School	E. Shields and N. Chestnut				
106	Rest Home	E. Shields & N. Maple				
107	Sierra Junior High School	E. Garland and N. Cedar				
108	Erikson Elementary School	N. Chestnut and E. Weldon				
109	Norseman Elementary School	N. Maple and E. Weldon				
110	Rest Home	N. Jackson and E. Hammond				
111	Ewing Elementary School	N. Chestnut and E. Olive				
112	Rest Home	N. Willow & E. Olive				
113	Turner School	N. Peach & E. Harvey				
114	Easterby Elementary and Kings Canyon Junior High School	N. Peach and E. Tulare				
115	Burroughs School	N. Recreation and E. Illinois				
116	Rest Home	N. Maple & E. Belmont				
117	Convalescent Hospital	S. Willow & E. Tulare				
118	Convalescent Hospital	S. Villa and E. Huntington				
119	Rest Home	S. Peach and E. Kings Canyon				
120	Rest Home	Sierra Vista and E. Kings Canyon				
121	Lane Elementary School	Sierra Vista and E. Butler				
122	Pacific College and Rest Home	S. Chestnut and E. California				

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
123	Calwa Recreation Park	S. Maple and E. Church				
124	Aynesworth Elementary School	S. Chestnut and E. Church				
125	Calwa Elementary School	S. Cedar and E. Jensen				
126	Malaga Elementary and Junior High School	S. Willow and E. Central				
127	Dry Creek Elementary School	N. Armstrong and E. Nees				
128	Temperance Elementary School	E. Olive and N. Armstrong				
129	Rest Home	E. Olive and N. Clovis				
130	Lone Star Elementary School	E. Jensen and S. Fowler				



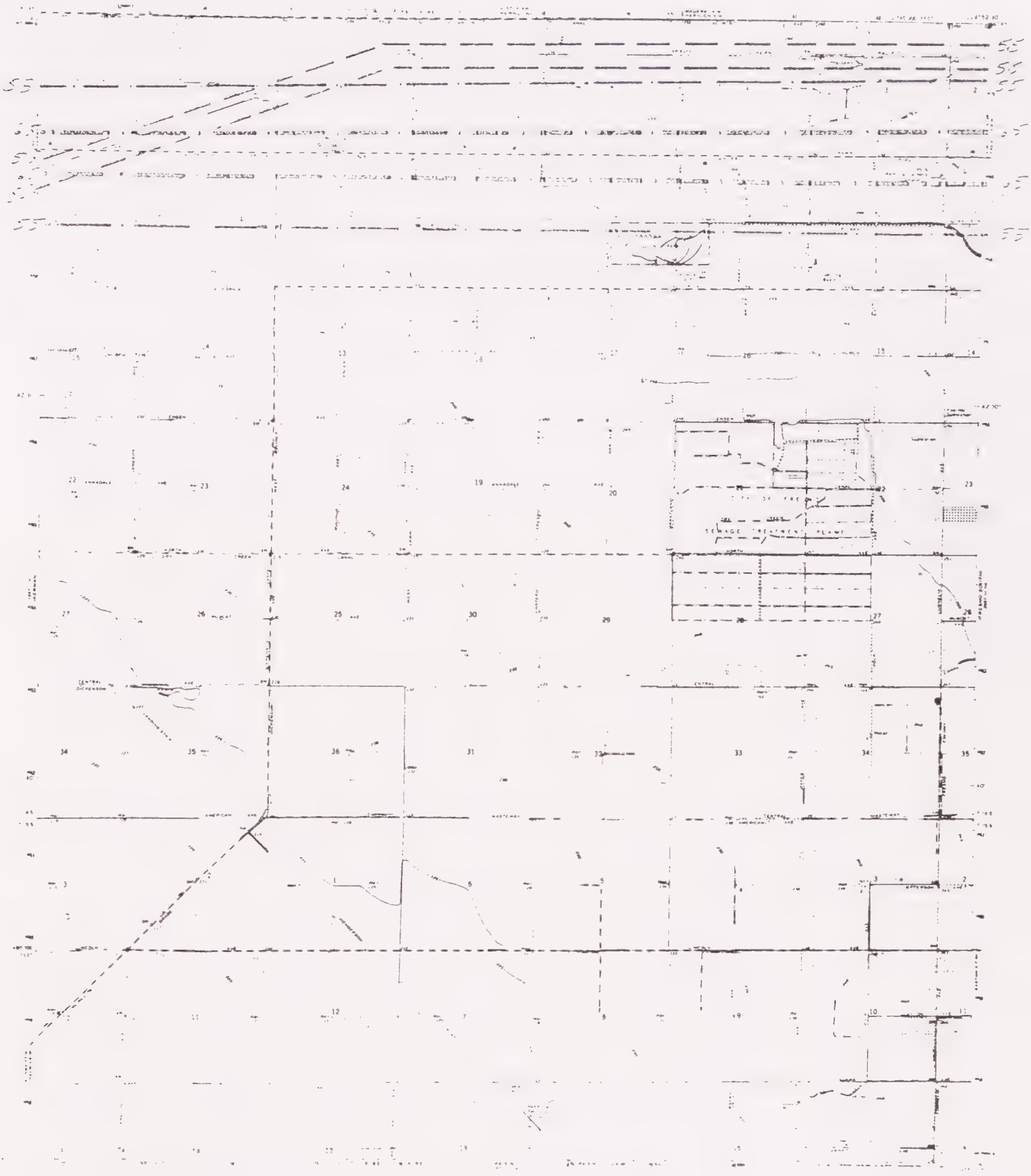
MAP 2-5

FRESNO (HERNDON)



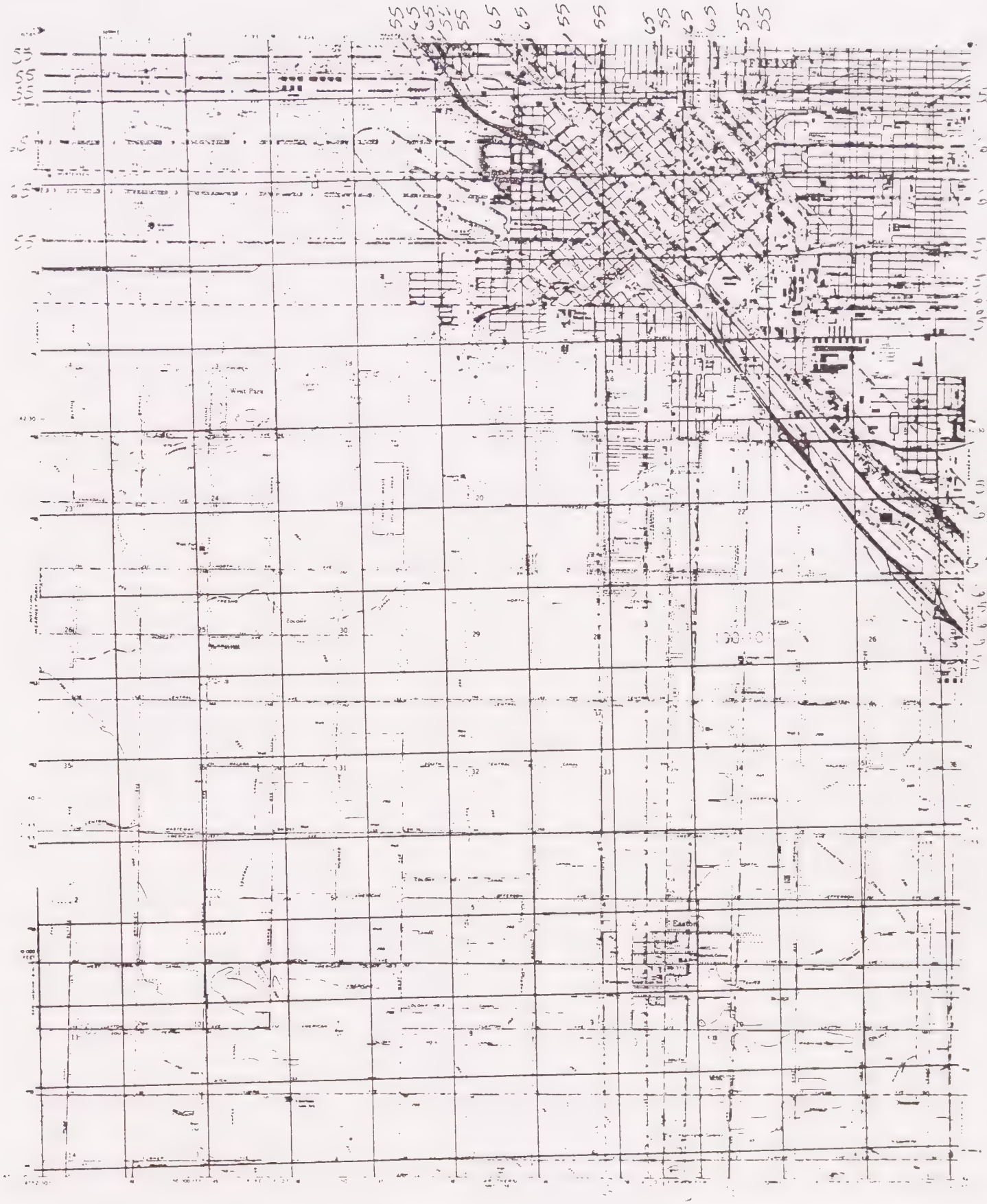
MAP 2-6

FRESNO
(FRESNO NORTH)



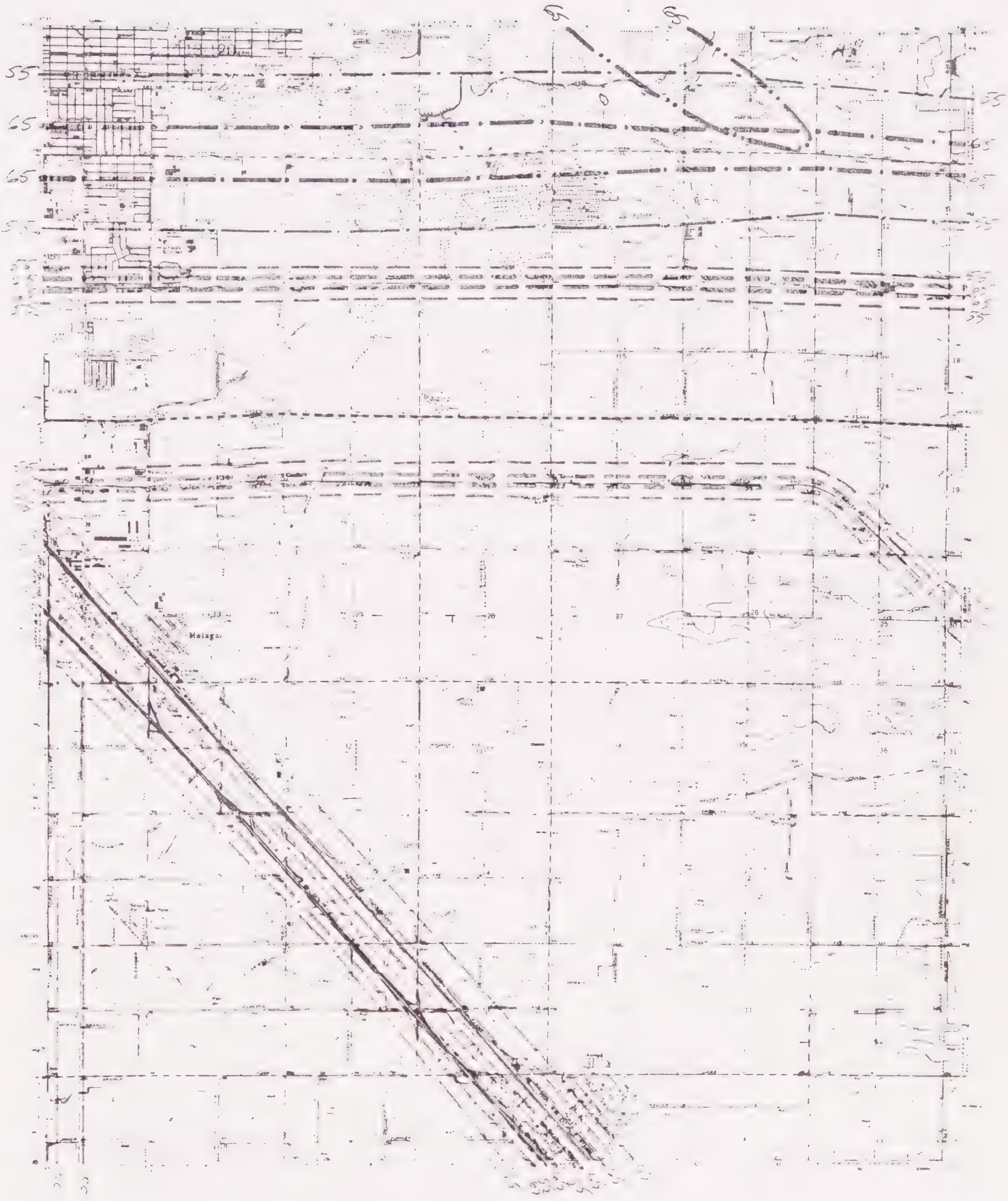
MAP 2-7

FRESNO
(KEARNEY PARK)



MAP 2-8

FRESNO
(FRESNO SOUTH)



MAP 2-9

FRESNO
(MALAGA)

CITY OF HURON

Existing Conditions

Industrial development in Huron is limited to an area bound by a Southern Pacific Railroad branchline on the north and a railroad spur on the south. This industrial area is found east of Lassen Avenue radiating from the Huron City Center. The railroad branchline is a major noise generating source in the City of Huron.

The commercial area of Huron is situated on the portion of Lassen Avenue within the city limits. The civic center is located in the Central Business District (CBD) found in the southern portion of the city near Central and 5th Avenue. An elementary school is located on the northern portion of the town next to an existing park.

The major areas of residential land use are located north and south of the industrial area and west of Lassen Avenue. The residential area west of Lassen Avenue is bisected by the Southern Pacific Railroad branchline.

Problem Identification

Problem areas in Huron are the Southern Pacific Railway, Lassen Avenue, possibly packing houses, with some impact from flights out of Lemoore Naval Air Station.

Table 2-6 shows the results of the on-site monitoring survey conducted in Huron. These sites are located on Map 2-10 along with the contour of those generators which are presently known.

TABLE 2-6

CITY OF HURON

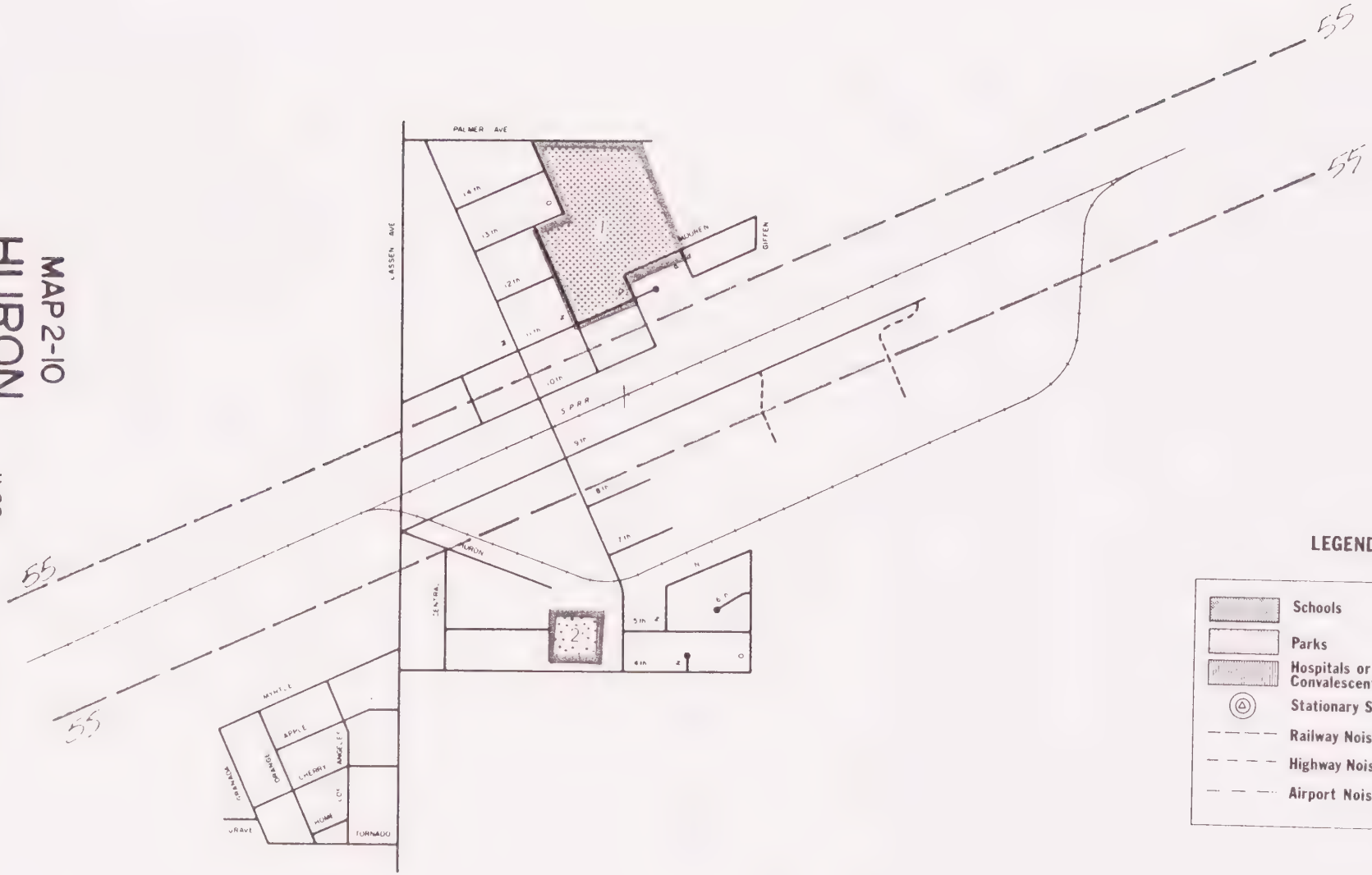
No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Huron School	12th & "N"	9/18/74	50.1	47.3	
2	City Park	5th	9/18/74	49.7	<45	

CITY OF KERMAN

Existing Conditions

The portion of Kerman south of California Avenue is designated primarily for industrial use. A Southern Pacific mainline railroad branch runs south and parallel to California Avenue and cuts across the northern boundary of the industrial zone. This railroad, along with a concrete plant near the railroad at California and 7th, are two major noise generating sources in Kerman.

MAP 2-10
HURON



LEGEND

- Schools
- Parks
- Hospitals or Convalescent Homes
- Stationary Source Contours
- Railway Noise Contours
- Highway Noise Contours
- Airport Noise Contours

NORTH

0 400 800 1200

SCALE IN FEET

Prepared by: Council of Fresno County Governments

Commercial development is concentrated in the portion of Madera Avenue (State Highway 145) within the City Limits north of the industrial zone. Some additional commercial land use is found along State Highway 180 (east-west) that is found near the northern boundary of Kerman. The Central Business District (CBD) is found in the southern portion of the linear commercial zone. The civic center is found in the CBD.

Residential land use is located east and west of the Madera Avenue commercial strip, north of the industrial zone. Higher density residential is concentrated near the CBD. Education facilities are generally located on the eastern and western fringes of the City.

The major travel corridors in Kerman --Whites Bridge Road (Route 180) and Madera Avenue (Route 145) are two major noise generators in the community.

Problem Identification

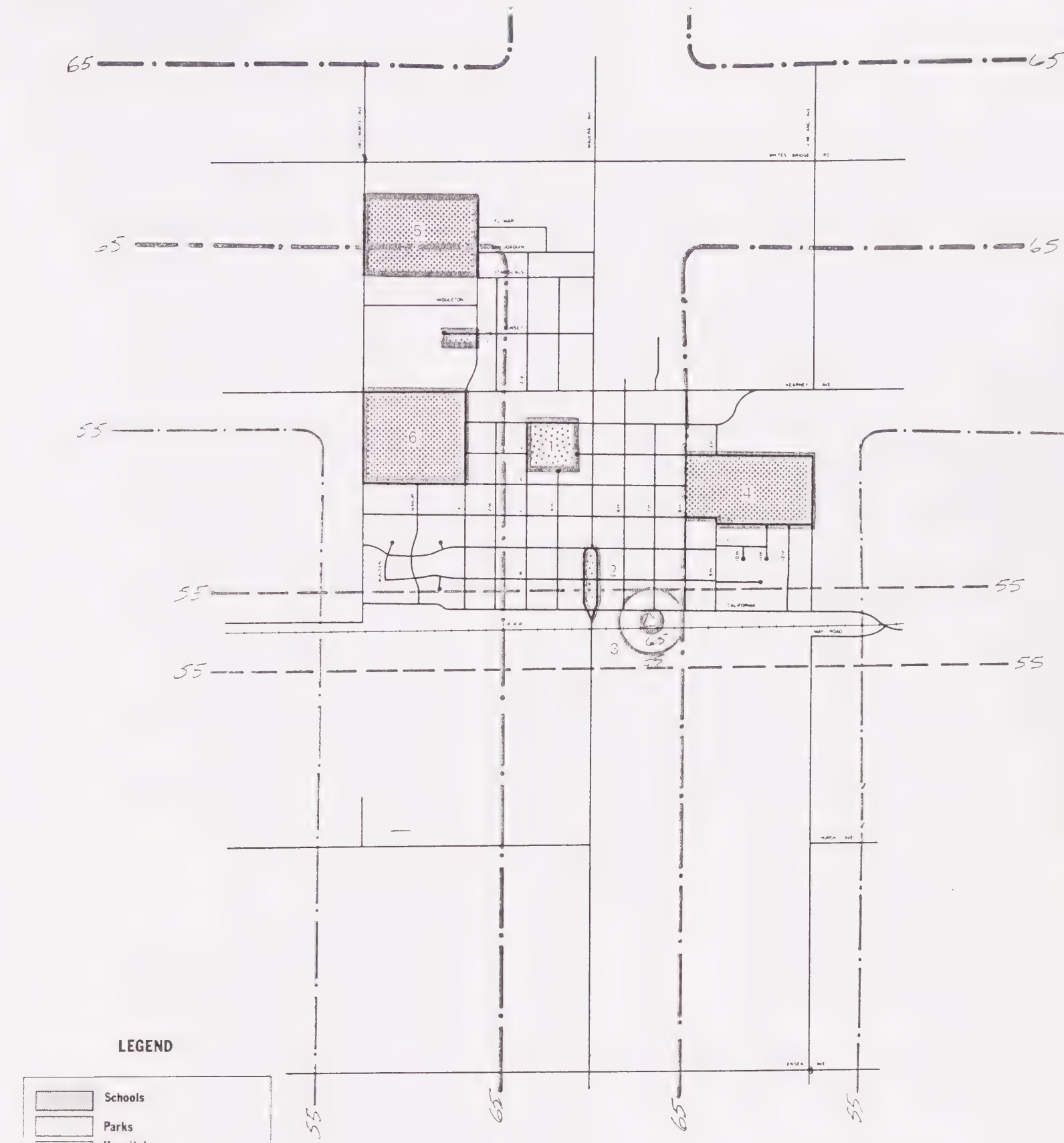
Problem areas that affect sensitive receivers in the City of Kerman are the corridors of Highways 145, 180, and the Southern Pacific Railroad, and the stationary industrial site at California and 7th streets.

Table 2-7 shows the results of the on-site monitoring survey conducted in Kerman. These sites are located on Map 2-11 along with the contours of those generators which are presently known.

TABLE 2-7

CITY OF KERMAN

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Kerchoff Park	4th & "E" Street	9/12/74	<45	<45	
2	Downtown Park	Madera & "B" Street	9/16/74	61.7	57.7	
3	Industrial Site	California & 7th Street	9/16/74	60.5	55.6	
4	Kerman Elementary	"E" & 7th	9/16/74	54.2	48.5	
5	Kerman High School	Stanislaus & 1st	9/16/74	58.5	48.2	Compressor
6	Kerman Junior High	1st & "F" Street	9/16/74	<45	<45	
7	Parochial School	1st & Sunset	9/16/74	59.7	56.7	Compressor



LEGEND

- Schools
- Parks
- Hospitals or Convalescent Homes
- Stationary Source Contours
- Railway Noise Contours
- Highway Noise Contours
- Airport Noise Contours

NORTH

0 500 000 500

SCALE IN FEET

MAP 2-11

KERMAN

Prepared by: Council of Fresno County Governments

CITY OF KINGSBURG

Existing Conditions

Generally speaking, the industrial land use area of Kingsburg is situated in a linear industrial corridor near Freeway 99 and the Golden State Boulevard stretching from the northwest to the southeast boundaries of the City. A southern Pacific mailine railroad runs parallel and to the north of the Golden State Boulevard through the industrial corridor. This railroad, as well as Freeway 99 and the Golden State Boulevard, are major noise generators in the city. An additional major generator in Kingsburg is the Cotton Oil Company located in the southern portion of the industrial corridor at Marion and Williams Avenues.

Commercial development is centered along Draper Avenue which is perpendicular to the industrial corridor. The civic center is found in the Central Business District of the commercial corridor. Public schools are evenly distributed in the residential areas surrounding the town center. The Kingsburg Hospital is situated north of the southern portion of the industrial corridor.

Medium high density residential is generally adjacent to the Central Business District. Medium density residential is located south of the industrial corridor and north and east of the center of the City.

Problem Identification

Problem areas that affect sensitive receivers in the City of Kingsburg are the corridors of Highways 99, 201and the Southern Pacific Railroad, and the stationary industrial sites Cotton Oil and the Cannery.

Table 2-8 shows the results of the on-sites monitoring survey conducted in Kingsburg. These sites are located on Map 2-12 along with the contours of those generators which are presently known.

TABLE 2-8

CITY OF KINGSBURG

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Memorial Park	Sierra & 16th	6/25/74	58.9	53.0	
2	Hospital	Earl & Lincoln	6/25/74	59.0	50.9	
3	Lincoln School	19th & Mariposa	6/25/74	59.0	52.2	
4	Roosevelt School	10th & Mariposa	6/25/74	64.9	59.3	
5	Kingsburg High School	Sierra & 18th	6/25/74	56.8	54.4	Construction & Windy
6	Washington School	Smith & Ellis	6/25/74	57.2	48.3	
7	Downtown Park	Marion & Lewis	6/26/74	61.1	54.5	
8	Cotton Oil Co.	Marion & Williams	6/26/74	64.9	56.4	
9	Convalescent Hospital	1101 Stroud Ave.	6/26/74	53.2	<45	
10	Packing House	Gilroy & Marion	6/26/74	61.6	58.9	

MAP 2-12
KINGSBURG

LEGEND

- Schools
- Parks
- Hospitals or Convalescent Homes
- Stationary Source Contours
- Railway Noise Contours
- Highway Noise Contours
- Airport Noise Contours

Prepared by: Council of Fresno County Governments

CITY OF MENDOTA

Existing Conditions

Industrial land use in Mendota is concentrated in a linear corridor that runs through the center of town. A Southern Pacific Mainline Railroad runs northwest/southeast through the industrial corridor and is a major noise generator in the City. Industry is also concentrated in the southeastern section of the City.

Commercial land use is found along Oller Avenue (State Highway 180), which is south and parallel to the railroad, and on the southern portion at Derrick Avenue (State Highway 33) within the City Limits. Both of these highways are major noise generators in the city of Mendota. The Central Business District (CBD) is located on or parallel to 7th Avenue in Mendota between Derrick and Oller Avenues, perpendicular to the industrial corridor. The civic center as well as a elementary school are found in or near the CBD. Other educational facilities and a park are located west of Derrick Avenue.

Residential land use is located north on the industrial corridor, to the north and south of the CBD, and to the west of Derrick Avenue. The Mendota Airport is situated east of the City near residential and industrial areas.

Problem Identification

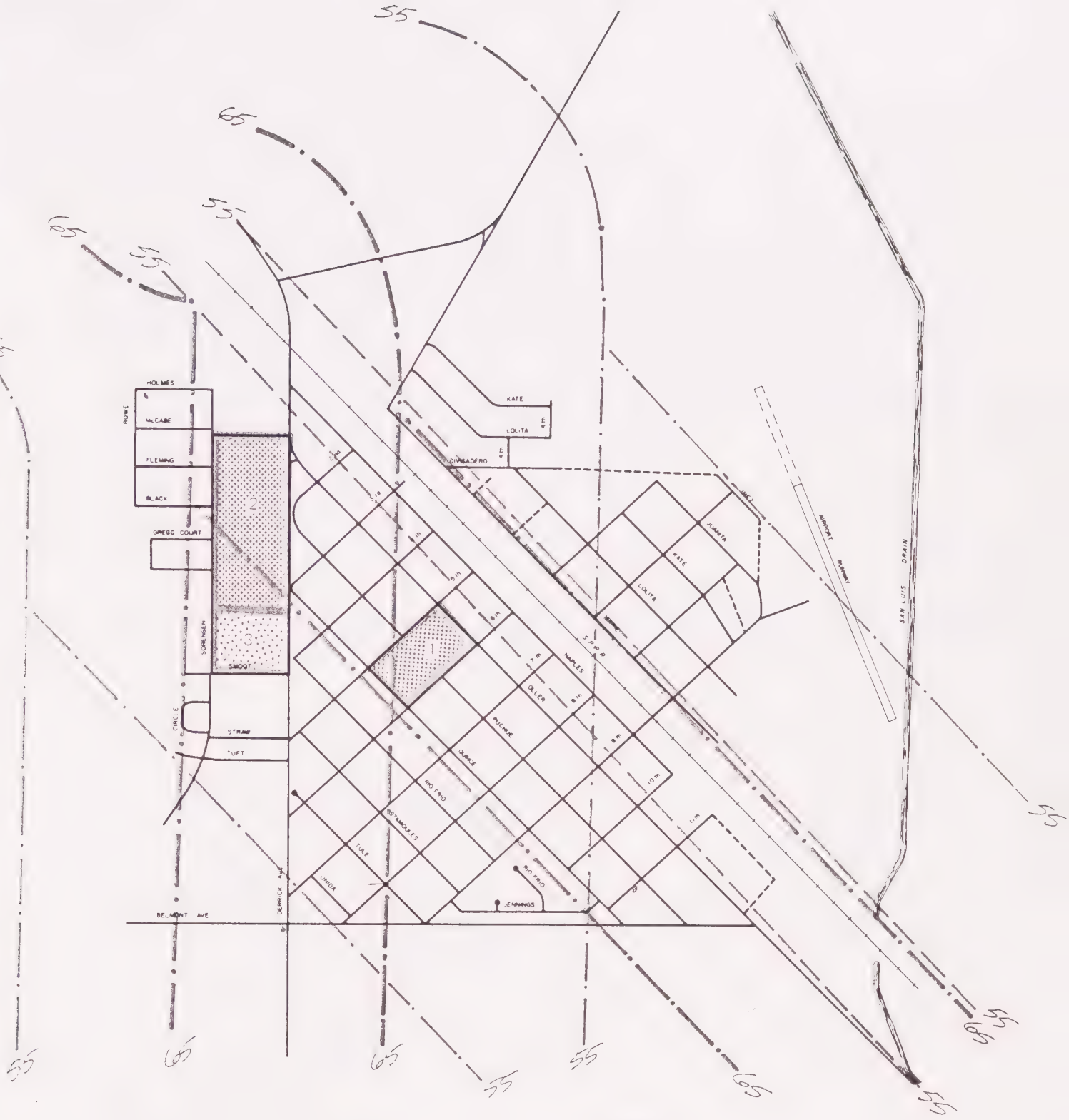
Problem areas that affect sensitive receivers in the city of Mendota are packing houses, the Southern Pacific Railway, and Highways 180, and 33.

Table 2-9 shows the results of the on-site monitoring survey conducted in Mendota. These sites are located on Map 2-13 along with the contours of those generators which are presently known.

TABLE 2-9

CITY OF MENDOTA

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Washington School	Quincy & 6th	8/8/74	54.2	47.5	
2	McCabe School	Highway 180 & 33	8/8/74	66.0	56.2	
3	Rojas Pierce Park	Sorensen Avenue	8/8/74	57.1	46.4	



LEGEND

- Schools
- Parks
- Hospitals or Convalescent Homes
- Stationary Source Contours
- Railway Noise Contours
- Highway Noise Contours
- Airport Noise Contours

MAP 2-13
MENDOTA

Prepared by: Council of Fresno County Governments

CITY OF ORANGE COVE

Existing Conditions

Industrial land use in Orange Cove is located along a railroad that moves northwest to southeast bisecting the community. Commercial land use is limited to the area adjacent to Sumner Avenue, an east-west street that runs through the center of the community. Government offices are found in the Central Business District on Sumner Avenue.

Residential land use is evenly divided to the north and south of the City, with higher densities near the Central Business District and lower densities near the fringe of the City. Educational facilities are found in the residential areas of the City away from the industrial corridor.

Problem Identification

Problem areas in Orange Cove are the Santa Fe Railroad switching operations and stationary industrial plants parallel to it.

Rail operations in Orange Cove are all switching operations. This example indicates typical peak noise levels from switching operations. Contours cannot be drawn without a specific analysis in the City.

TABLE 2-10

NOISE LEVELS PRODUCED BY RAILROAD YARD OPERATIONS

Significant Yard Noise Producing Operations	Peak Noise Level at 100 ft. dBA
1. Switcher engine movements	
a. Steady Pull Through Yard	78
b. Classification Start-Stop Cycle	80
2. Idling Locomotives	
a. Road Engine	71
b. Switch Engine	65
3. Car Impacts	
a. Single or multiple cars into parked cars—coupling	91
b. Chain reaction impacts—start-up or stopping of a line of cars	91

Table 2-11 shows the results of the on-site monitoring survey conducted in Orange Cove. These sites are located on Map 2-14 along with the contour of those generators which are presently known.

TABLE 2-11

CITY OF ORANGE COVE

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Park	Park & 6th	7/29/74	58.0	49.7	
2	Shendaw School	South & 9th	7/29/74	55.0	45	
3	Citrus School	"B" & 9th	7/29/74	58.3	45	Auto run-up
4	McCord School	Center & "G"	7/29/74	57.2	47.3	

CITY OF PARLIER

Existing Conditions

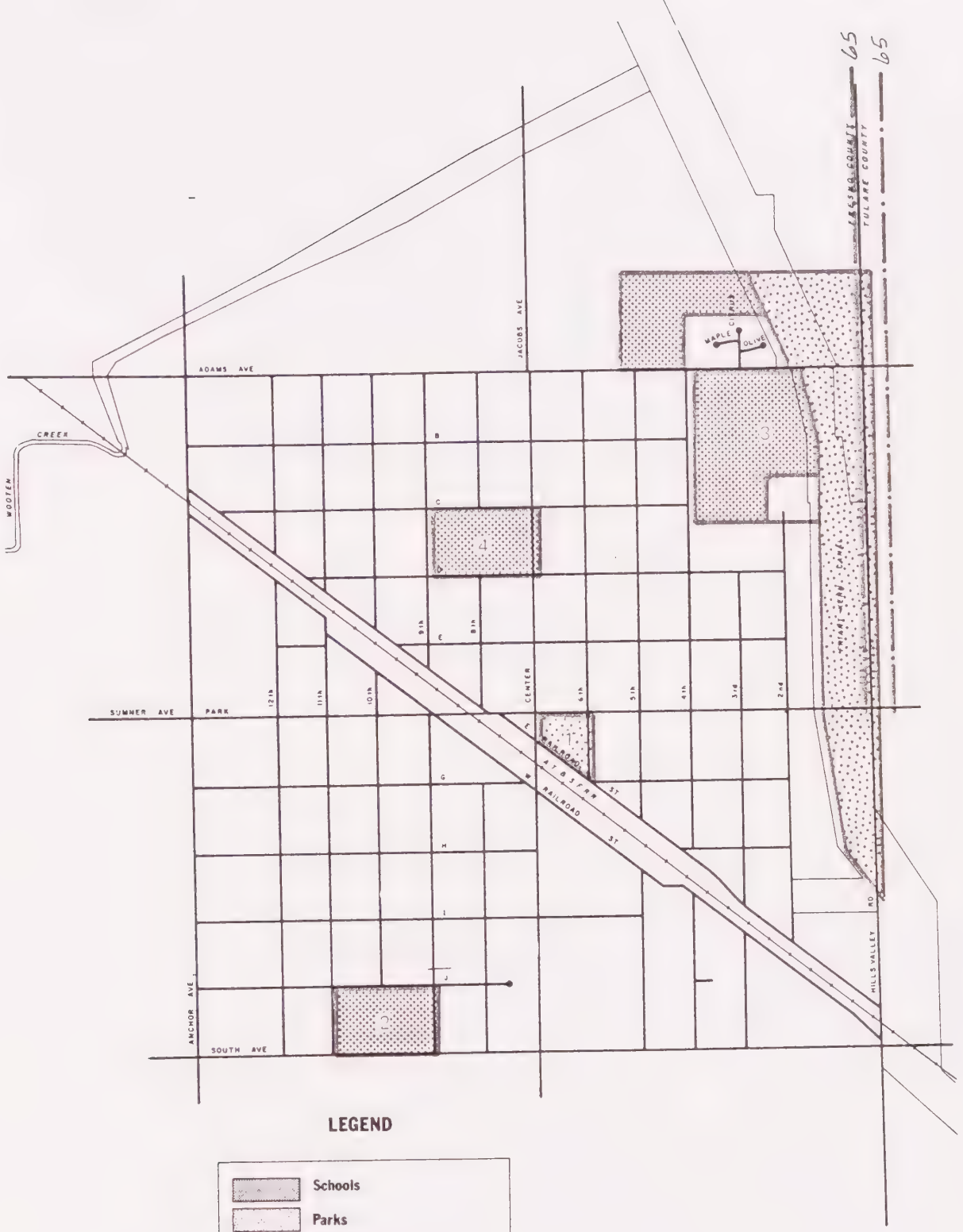
The City of Parlier is divided by a Santa Fe Branchline Railroad running east-west through the City. Industrial land use in Parlier is limited to the eastern portion of the City north of the railroad and to the southwestern part of Parlier north of Manning Avenue.

Limited commercial land use is situated on Manning Avenue, which forms the southern boundary of the City. The bulk of commercial use is found along Parlier Avenue just south of the railroad. The civic center is located on Parlier Avenue at the western fringe of the City.

Residential land use is located north and south of the commercial strip along Parlier Avenue, with lower densities toward the southern and northern fringes of the City. Educational facilities are situated at the northern fringe of the City and midway between the railroad and Manning Avenue in the southern sector of the City.

Problem Identification

Problems affecting Parlier are the packing houses, Santa Fe Railway, and Manning Avenue.



LEGEND

- Schools
- Parks
- Hospitals or Convalescent Homes
- Stationary Source Contours
- Railway Noise Contours
- Highway Noise Contours
- Airport Noise Contours

MAP 2-14
ORANGE COVE

NORTH

0 400 800 1200
SCALE IN FEET

Prepared by: Council of Fresno County Governments

The results of the on-site monitoring survey conducted in Parlier are shown in Table 2-12. These sites are located on Map 2-15 along with the contours of those generators which are presently know.

TABLE 2-12
CITY OF PARLIER

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Downtown Park	Fresno & "J"	7/31/74	59.7	51.7	
2	City Park	2nd & "J"	7/31/74	52.2	45.5	
3	Unified School	3rd & "K"	7/31/74	52.9	45.5	
4	Industrial Site	Parkers Road	7/31/74	72	67.5	
5	Tuolomne School	Toulomne & "H"	7/31/74	53.0	48.1	
6	Mendocino School	Parlier Avenue	7/31/74	58.2	50.4	

CITY OF REEDLEY

Existing Conditions

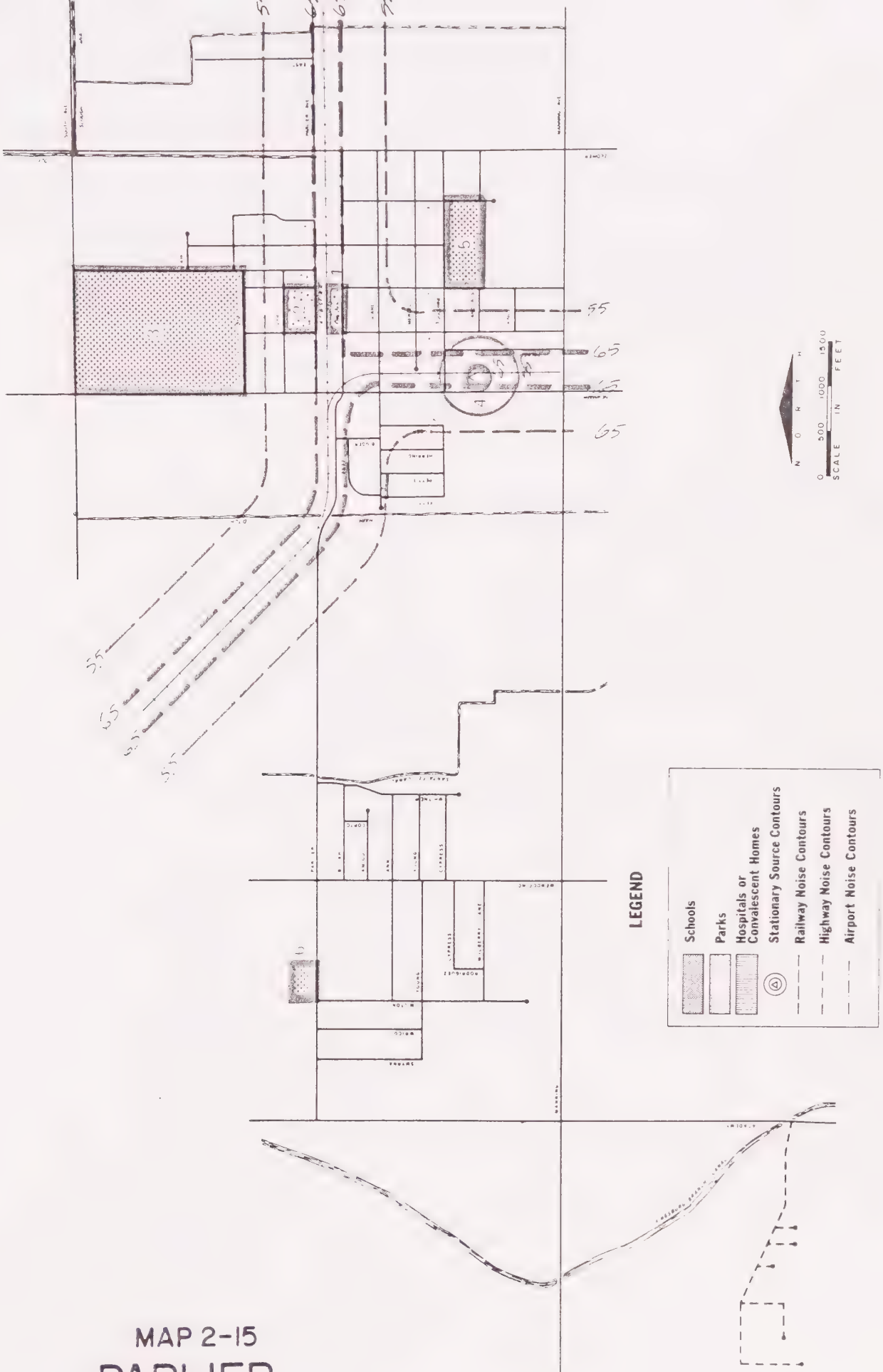
Industrial land use in Reedley is located in a northwest-southeast corridor moving through the center of the City, with a concentration of industrial use in the southeastern quadrant of the City. Running through this industrial belt is a branchline railroad. A second railroad branches out from this main rail line near the point where the main railroad enters the City in the north. The second railroad moves through a residential area and past a high school and hospital. These two rail corridors constitute the major noise-generating sources in Reedley.

Commercial land use is concentrated on 11th Avenue, which runs through the center of town perpendicular to the main railroad. Major industrial land use is also found along "G" Street which runs parallel to the main railroad and perpendicular to 11th Avenue. The civic center is located at the northern portion of the City, primarily in residential areas. One elementary school is located near the main railroad line in the industrial belt. As previously mentioned, one school--a high school--is located near the branch railroad that moves through the northern part of the City.

Residential land use radiates north and south of the industrial corridor with higher densities near the CBD and major thoroughfares.

Problem Identification

Problem areas that affect sensitive receivers in the City of Reedley are corridors of the Santa Fe Railroad, Southern Pacific Railroad, Manning



MAP 2-15

PARLIER–WEST PARLIER

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Avenue, and Reed Avenue, and the stationary industrial sites such as packing houses.

Table 2-13 shows the results of the on-site monitoring survey conducted in Reedley. These sites are located on Map 2-16 along with the contours of those generators which are presently known.

TABLE 2-13

CITY OF REEDLEY

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Downtown Park	9th & "G"	6/27/74	65.3	63.4	Hydra Cooler
2	Washington School	13th & "K"	6/27/74	55.4	46.6	
3	Mennonite Home	13th & "K"	6/27/74	56.8	48.4	
4	Convalescent Home	Reed & DInuba	6/27/74	64.8	55.4	Traffic Noise
5	Immanuel Academy	Reed & Lower Bridge Road	6/27/74	58.7	51.9	
6	Reedley High School	North & "F"	6/27/74	58.8	51.8	Construction Noise
7	Reedley College	Manning & Reed	7/3/74	56.8	50.3	
8	Sierra-Kings Hospital	Cypress & Acacia	7/3/74	54.5	45	
9	Saint LaSalle School	Manning & Del Altar	7/3/74	60.7	51.8	
10	Lincoln School	11th & North	7/3/74	60.9	52.1	
11	Muellen Park	Springfield & Sunset	7/8/74	54.0	47.8	
12	Sierra Views Home	1155 Springfield	7/8/74	57.7	49.1	
13	Convalescent Hopital	1090 E. Dinuba	7/8/74	64.0	54	Traffic Noise
14	Armstrong Guest Home	19870 E. Dinuba	7/8/74	67.3	57.5	Traffic Noise
15	Jefferson School	Duff & Columbia	7/8/74	58.0	49.4	
16	General Grant School	12th & East	7/8/74	62.2	49.4	

MAP 2-16
REEDLEY

Prepared by County of Fresno Department

CITY OF SANGER

Existing Conditions

Industry generally follows a north-south railroad that moves through the City. This railroad is a major noise generator in the community. Industry is also concentrated in the southern portion of the City. Commercial land use is generally located along Academy Avenue, west of and parallel to the railroad. The Central Business District is concentrated near the intersection of Academy Avenue and 7th Avenue. The civic center is located to the west of the Central Business District.

Residential land use is found east and west of the industrial corridor with a concentration around the Central Business District of Academy Avenue. Educational facilities are scattered throughout the residential areas of Sanger with the greatest number west of Academy Avenue. The only center is located at the western fringe of the City on Jensen Avenue.

Problem Identification

Problem areas that affect the sensitive receivers in the City of Sanger are the corridors of the Southern Pacific Railroad, Jensen Avenue, Academy Avenue and the stationary sites such as the packing houses in the Annadale area and the potential problems of the industrial park on North Avenue.

Table 2-14 shows the results of the on-site monitoring survey conducted in Sanger. These sites are located on Map 2-17 along with the contours of those generators which are presently known.

—CITY OF SAN JOAQUIN

Existing Conditions

Industrial land use in San Joaquin is concentrated in a linear strip of land moving southeast-northwest through the City, through which a branchline railroad runs. This railroad is a major noise generator in the City. Commercial land use is concentrated along Colorado Avenue, which is north of and parallel to the railroad, and along Main Avenue, perpendicular to Colorado Avenue.

The main areas of residential land use are north and south of the industrial-commercial corridor. An elementary school is situated in the northern residential area.

Problem Identification

The only major problem affecting San Joaquin is Colorado Avenue.

The results of the on-site monitoring survey conducted in San Joaquin are shown in Table 2-15. These sites are located on Map 2-18 along with the contours of those generators which are presently known.

TABLE 2-14

CITY OF SANGER

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Park	Academy & 5th	7/15/74	60.1	54.3	
2	Convalescent Hospital	Tait & 5th	7/15/74	59.6		Construction
3	Jackson School	Hill & 3rd	7/15/74	51.5	45	
4	Sanger Hospital	Jensen Ave.	7/15/74	66.3	58.3	Traffic Noise
5	Community Center	Jensen & West	7/16/74	63.7	58.5	Under Construction
6	Taft School	DeWitt & 7th	7/16/74	60.4	48.8	Garbage Truck, Lawn Mower
7	Convalescent Hospital	Brehler & 9th	7/16/74	54.8	47.4	
8	Washington School	Cottle & 9th	7/16/74	54.5	48.4	
9	Sanger High School	"P" & 10th	7/16/74	54.3	47.7	
10	Lincoln School	"P" & 14th	7/16/74	57.7	45.5	
11	Lincoln Park	"P" & Cherry	7/16/74	56.8	47.9	Aircraft Approach
12	Madison School	Cherry Avenue	7/16/74	<45	<45	
13	Greenwood Park	Greenwood & Palm	7/17/74	51.2	<45	
14	Wilson School	Fallen & 7th	7/17/74	54.3	47.9	
15	Jefferson School	Tucker & Millwood	7/17/74	50.0	<45	
16	Industrial	Annadale & "K"	7/17/74	69.4	63.8	
17	Industrial Park	Industrial Park	7/17/74	49.7	<45	

TABLE 2-15

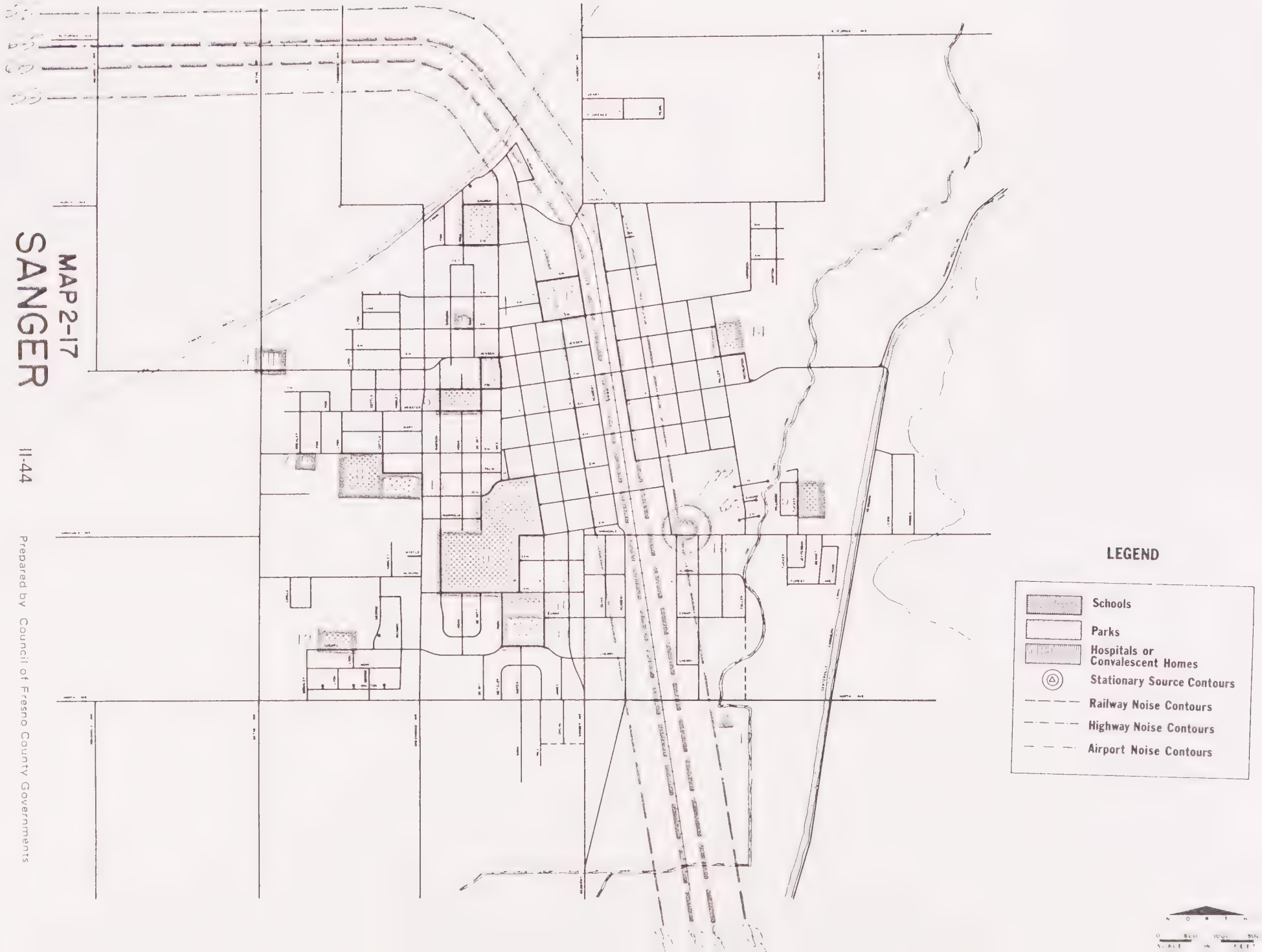
CITY OF SAN JOAQUIN

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Park	Railroad & Main	8/5/74	59.9	52.3	
2	San Joaquin School	Nevada & 9th	8/5/74	57.5	49.0	Plane Dusting

CITY OF SELMA

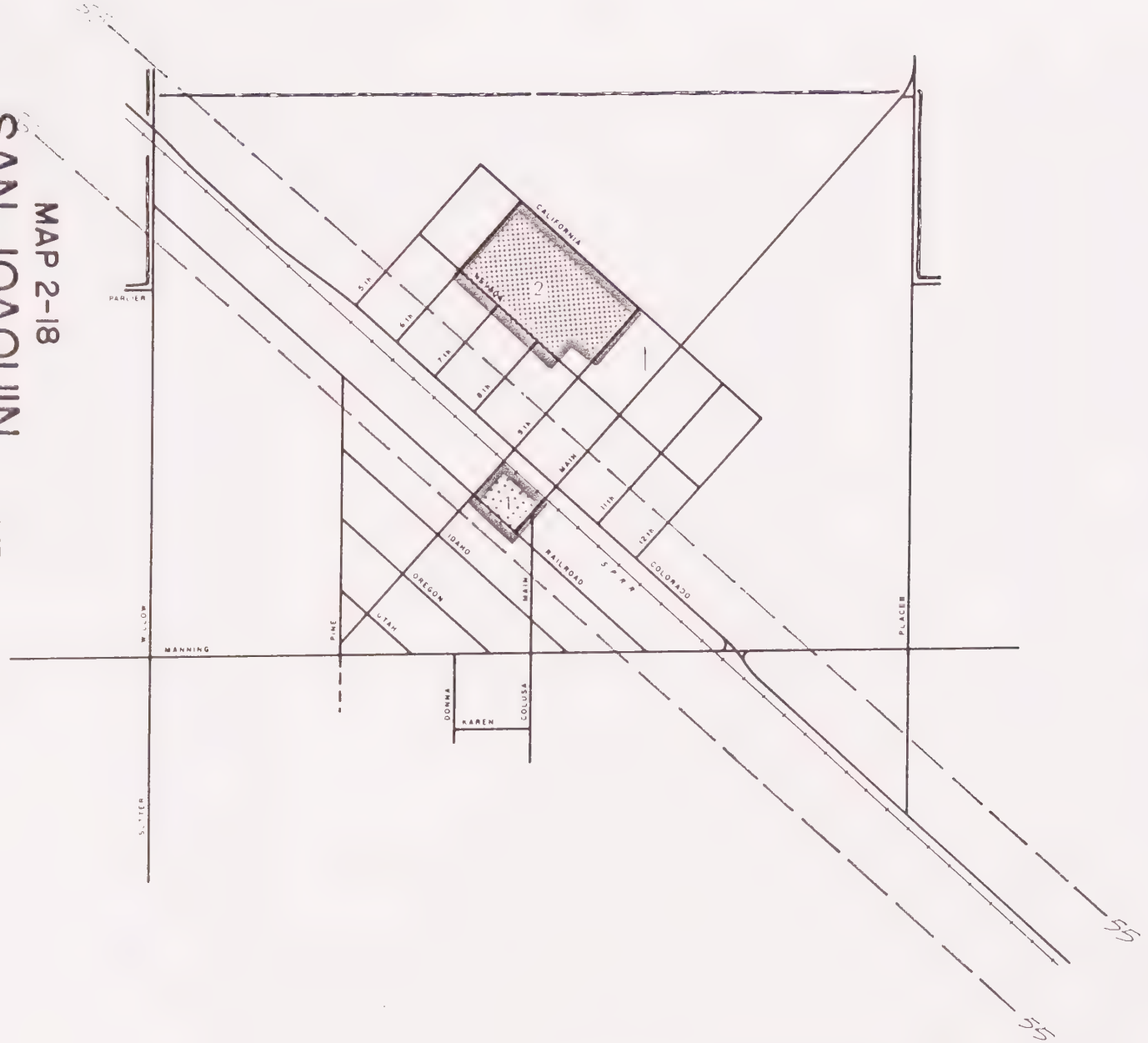
Existing Conditions

Industrial land use in Selma is generally located in a linear strip between



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MAP 2-18
SAN JOAQUIN



LEGEND

- Schools
- Parks
- Hospitals or Convalescent Homes
- Stationary Source Contours
- Railway Noise Contours
- Highway Noise Contours
- Airport Noise Contours

NORTH

0 400 800 1200

SCALE IN FEET

Prepared by: County of Fresno County Governments

Freeway 99 and Golden State Boulevard. These two transportation corridors are major noise generators in the community. Parallel to, and norht of Golden State Boulevard is a Southern Pacific mainline railroad, another major noise generator. Commercial land use is concentrated near Freeway 99 and Golden State Boulevard and the Central Business District bound by Arrants, McCall, and Golden State Boulevard. Scattered commercial use is located near major thoroughfares.

The primary residential areas are North and South of the industrial corridor with higher density near major thoroughfares.

Problem Identification

Problem areas that affect sensitive receivers in the City of Selma are the corridors of Highways 99 & 43, Golden State Boulevard, Southern Pacific Railroad, and McCall Avenue.

Table 2-16 shows the results of the on-site monitoring survey conducted in Selma. These sites are located on Map 2-17 along with the contours of those generators which are presently known.

COUNTY OF FRESNO

Existing Conditions

Fresno County is well served with many highways, rail lines, and air service to efficiently transport people and commodities. These highways and rail facilities generate high levels of noise which parallel the facility throughout the County.

1. Highways

Interstate	5
State Freeway	99
State Highway	33
State Highway	41
State Highway	43
State Highway	63
State Highway	245
State Highway	145
State Highway	168
State Highway	180
State Highway	198

The contours for the entire system of highways have been mapped and can be found in Appendix I. For purposes of mapping clarity, only the 65 dBA and the 55 dBA contours have been shown. The weighting scale used is the L_{10}. This is the highest level of noise exceeded then percent of the time. The 45 dBA contour was not shown because of difficulty in validating data at such a low level of sound. The ambient noise level often exceeds 45 dBA making it

(Note: No Page II-46)

Table 2-15 shows the results of the on-site monitoring survey conducted in Selma. These sites are located on Map 2-15 along with the contours of those generators which are presently known.

TABLE 2-16
CITY OF SELMA

No.	Land Use	Location	Date	dBA L_{10}	dBA L_{50}	Comments
1	Beny Park	Sylvia & 2nd	6/10/74	64.0	59.4	
2	Washington School	Bander & 2nd	6/10/74	69.6	59.3	
3	White School	Mitchell & Nebraska	6/20/74	59.4	49.2	
4	Garfield School	Tulare & "B"	6/10/74	54.4	47.0	
5	Ringo Playground	Mitchell & Nebraska	6/18/74	64.1	56.9	
6	Jefferson School	Sylvia & Thompson	6/18/74	66.4	58.4	
7	Selma High School	Wright & Jackson	6/18/74	58.1	49.0	
8	Convalescent Home	Stillman & Lee	6/18/74	55.2	48.7	Compressor
9	Roosevelt School	Floral & "B"	6/18/74	63.8	54.8	
10	Jackson School	Wright & Huntsman	6/18/74	56.6	49.6	Children
11	Hospital	Rose & Country Club	6/18/74	59.1	54.1	Windy
12	Park	Selma & Cross	6/20/74	58.7	54.2	
13	Park	Rose & Olive	6/20/74	52.6	46.7	Church Bells
14	Bethel Home	Dockery & Evergreen	6/20/74	54.0	45	
15	Wilson School	Dockery & Stillman	6/20/74	54.9	46.4	

impossible to measure that level from the road source. The distance in feet of each contour is 5 decibel increments are listed for each highway be table in Appendix J. The methodology for computing the 45 dBA contour has been included in Appendix K as an informational item.

2. Railways

The rail lines analyzed were:

Southern Pacific - Mail Line
Coalinga Branch
Clovis Branch

MAP 2-19
SELMA

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Riverdale Branch
Calwa Transfer
California Avenue Branch
Atchison, Topica & Santa Fe - Main Line
Visalia Branch

The weighting scale used for railway noise is L_{dn}. This is composite scale which reliably depicts annoyance factors from sources having an intense noise with sporadic occurrences. As with the highways, only the 65 dBA & the 55 dBA contours are shown on the maps for the purpose of visual clarity. The distances in feet of the contours are shown in Appendix J.

3. Airports

The airports of regional concern as possible noise problems are:

Fresno Air Terminal
Fresno Chandler Field
Proposed Coalinga Cargo Port
Lemoore Naval Air Station

There is insufficient traffic at the other general aviation airports to develop time-weighted contours of noise for the flight paths.

The Fresno Air Terminal has the greatest effect on the largest number of people because of its location within the Fresno-Clovis Metropolitan Area. The flight path contours extend well over the northern half of Fresno as well as the present rural areas to the east of the City. The greatest annoyance comes from National Guard flights which occur over the northern part of Fresno and the City of Clovis.

Fresno Chandler Field is a general aviation airport, and therefore is not a major problem in terms of noise impact. The contours do extend slightly over the runway to the northwest and southeast of the airport.

The Proposed Coalinga Cargo Port location is in a rural area on the west side of the Fresno County Region. There is presently very little demand for development in that general area, but as the facility creates demand, it will be necessary to carefully analyze and proposed developments near the airport to prevent adverse environmental conditions from occurring.

Lemoore Naval Air Station presently affects a comparatively small and scattered population in the southwest part of the Fresno County Region. The contours for this facility are presently being updated. When this information becomes available, it will provide the necessary tools to provide noise impact assessment of any development that is proposed in that general area of the county.

Problem Identification

1. Highways

Problems resulting from the generation of noise from highways occur when more sensitive land uses such as residential dwellings, schools, hospitals or

convalescent homes locate to close to the facilities, or when larger than expected increases in traffic occur on facilities where existing sensitive land uses are already located. Vehicle noise limits are set forth in the California Vehicle Code (Appendix E). These can be enforced by local police departments as well as the California Highway Patrol.

Where State Highways or other regionally significant roads exist, adequate setbacks or mitigation measures should be required for all proposed developments. Title 25 of the California Administration Code (Appendix B) is a good guideline to use for environmental impact assessment of any proposed development.

2. Railways

Problems resulting from the generation of noise from railway facilities occur when more sensitive land uses such as residential dwellings, schools, or medical facilities locate too close to the tracks. This is particularly true when there are significant number of night-time operations. The noise from the line operations of the railway itself cannot be controlled locally. The proposed Federal regulations (summary in Chapter I) set decibel limits allowable from train operations at 93 dBA. This continuing occurrence of such a very high level of noise necessitates careful consideration of the types of land use allowed to locate near the tracks.

Another common complaint of noise from trains is the whistles. For safety reasons, the whistle is required by the California Public Utilities Commission to sound at all grade crossings. When grade separations are constructed, the whistle is no longer required to sound.

3. Airports

The foremsot existing problem is the noise impact of Fresno Air Terminal. The flightpath crosses the northern and northeastern parts of the City of Fresno and the western part of the City of Clovis. As the increasing demand for air commerce generates more flights from FAT, the noise impact on the community will also increase.

The noise impact of Lemoore Naval Air Station on the southwestern part of Fresno County is presently being reexamined. It is fortunate that this area is sparsely populated and therefore not greatly affected by the intense military jet noise. The clear zones must be maintained near the facility.

The proposed Coalinga Air Cargo Port plan includes adequate clear zones around the airport site to prevent environmental noise impact.

CHAPTER III
NOISE ELEMENT

variety of uses can be included in this category, including public utilities, transportation systems, and other noise-related uses.

Examples of Insensitive Land Uses are as follows:

Agriculture
Construction Yards
Forestry
Horticulture
Industrial Manufacturing
Liquid and Solid Waste Facilities
Livestock Farms
Mining and Extraction
Motorcycle Parks
Natural Open Space
Parking Lots
Raceways and Drag Strips
Railways and Terminals
Rifle Ranges
Transit Systems and Terminals
Undeveloped Land
Warehousing Utilities
Water Areas
Wrecking and Salvage Yards

2. Moderately Sensitive Land Uses -- Some degree of noise control must be present if these activities are to be successfully carried out. Included here are general business and recreational uses.

Examples of Moderately Sensitive Land Uses are as follows:

Athletic Clubs
Country Clubs
Equestrian Clubs
General Merchandising
Golf Courses and Driving Ranges
Government Services
Lodges, Community Associations
Professional Offices
Recreational Vehicle Parks
Restaurants and Bars
Scientific Testing
Tennis Clubs

3. Sensitive Uses -- Lack of noise control will result in many of the effects described earlier in this element. This category primarily contains residential uses.

Examples of Sensitive Land Uses are as follows:

Cemeteries
Dormitories
Hotels
Mobilehome Parks
Motels
Multi-family dwellings (high rise)
Multi-family dwellings (low rise)
Out-Patient Clinics
Preschools
Professional Research
Resort Hotels
Single-family dwellings (attached)
Single-family dwellings (detached)

4. Highly Sensitive Uses -- A high degree of noise control is necessary for the successful operation of these activities. Examples include hospitals and churches.

Examples of Highly Sensitive Land Use are as follows:

Auditoriums
Churches
Concert Halls
Convalescent Homes
Educational Facilities
Hospitals
Single-family dwellings (rural)
Wildlife Sanctuaries

The above categories indicate only the sensitivity of the use itself to noise, not how noise emitted from the use affects surrounding uses. For example, motorcycle tracks and drag strips themselves are not affected by noise; however, such uses next to a residential neighborhood would have a substantial adverse effect on the residential area.

Standards for Land Use Compatability:

The proposed model community noise control ordinance limits the daytime L_{50} noise level to 50 dBA for residential areas. Stationary generators creating greater noise levels than L_{50} dBA are possible problems in the community. Careful land use planning should be done so that existing industrial sites do not become problems in the future. (This discussed in greater detail in Chapter Four.)

Table 3-1 shows the maximum levels of ambient noise that are desired in the generalized land use categories.

TABLE 3-1

LAND USE CATEGORY	Noise Level dBA		
	L_{50} Day	Night	L_{dn}
Insensitive Uses	60	55	70
Moderately Sensitive Uses	55	50	65
Sensitive Uses	50	40	55
Highly Sensitive Uses	45	40	50

Source: Kern County Health Department, Based on EPA Levels Document

A successful noise control program must have established standards that are easily understood and interpreted and relatively easy to monitor and enforce with available equipment.

The railroad contours are wighted on an L_{dn} (Day-night average level) scale. L_{dn} is a composite noise scale which puts a ten decibel wighting penalty on noise events that occur between 10:00 p.m. and 7:00 a.m.

Proposed Policies For Land Use Relationships:

1. To prohibit exterior noise levels from exceeding these specified limits in each land use category for these specific time periods:

Noise Zone	Type of Land Use	Time Interval	Allowable Exterior Noise Level
I	Single or double Family residential (R-1 & R-2)	10 p.m. to 7 a.m. 7 a.m. to 10 p.m	45 dBA
II	Single, double or multiple family (R-1, R-2, & R-4)	10 p.m. to 7 a.m. 7 a.m. to 10 p.m.	50 dBA 55 dBA
III	Commercial (C-1, C-2, etc.)	10 p.m. to 7 a.m. 7 a.m. to 10 p.m.	60 dBA 65 dBA
IV	Industrial or manufacturing (M-1, M-2, etc. or 1-1, 1-2, etc.)	Anytime	70 dBA

or for exterior noise levels to exceed:

A. The noise standard for a cumulative period of more than thirty minutes in any hour; or

B. The noise standard plus 5 dBA for a cumulative period of more than fifteen minutes in any hour; or

C. The noise standard plus 10 dBA for a cumulative period of more than five minutes in any hour; or

D. The noise standard plus 15 dBA for a cumulative period of more than one minute in any hour; or

E. The noise standard plus 20 dBA for any period of time.

2. To prohibit the allowable interior noise level of residential land uses to exceed:

45 dBA	from 10 p.m. to 7 a.m.
55 dBA	from 7 a.m. to 10 p.m.

or, for the interior noise level to exceed:

A. The noise standard for a cumulative period of more than five (5) minutes in any hour; or

B. The noise standard plus five (5) dBA for a cumulative period of more than one (1) minute in any hour; or

C. The noise standard plus ten (10) dBa for any period of time.

Noise and Transportation Relationships

Objectives:

1. To implement a circulation pattern which will minimize and properly diffuse truck traffic in retail, commercial, and residential areas.

2. To enforce existing California Vehicle Code Regulations for noise levels allowed by vehicles.

Principles:

Specific truck routes should be adopted to coincide with designated regionally significant roads in Fresno County. This will not only facilitate budgeting for road improvements but will assist in the implementation of the proposed policies for noise control. The adoption of truck routes throughout each community and in the surrounding Fresno County areas will also encourage future manufacturing and industrial facilities to locate within easy access of the necessary roads. The truck routes must also interface well with rail facilities to facilitate the distribution of commodities while minimizing noise impact upon the local environment.

Standards:

Title 25 of the California Administrative Code requires that an acoustical analysis be done for all multiple-family dwellings that are to be located within a 60 dBA CNEL noise contour. The Regional Noise Element recommends that this same standard be applied to single family dwellings, schools, hospitals, convalescent homes as well. For the highway contours which are in L_{10}, this means that the proposed development should have an acoustical analysis performed if it is to be located within the L_{10} 55 dBA contour. The general formula for converting CNEL to L_{10} is:

$$\text{CNEL} = L_{10} - 3 \text{ dB} \pm 5 \text{ dB}$$

For the railway contour, which is in L_{dn}, an acoustical analysis should be performed in accordance with Title 25 for proposed developments within the 55 dBA contour.

CHAPTER IV
IMPLEMENTATION

Implementation of Proposed Policies

A city or county Noise Element cannot effectively control community noise unless implementation measures are delineated, adopted and enforced. This section of the Noise Element will therefore include implementation measures that can be adopted by a city or county in order to prevent deterioration of the noise environment. This section will also provide guidelines for determining acceptable noise levels for existing and future land uses.

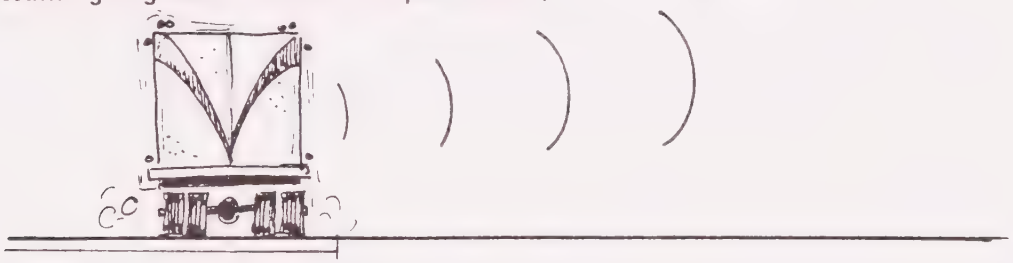
Land Use Planning

Land use planning is the key to preventing an environment with undesirable noise levels. This requires the identification of noise impacted areas(or zones) and the adoption of the necessary measures to make adjacent land uses compatable. These noise impact zones are intended to indicate areas of probable noise impact from highways, railroads, airports, and certain stationary (industrial) sources. Noise contours have been developed for these zones of impact and are contained in Chapter Two for the incorporated cities and Appendix I for the rest of the Fresno County Region. All future projects that are located within these zones should have an acoustical analysis done as part of the site plan review to determine what mitigation measures might be needed.

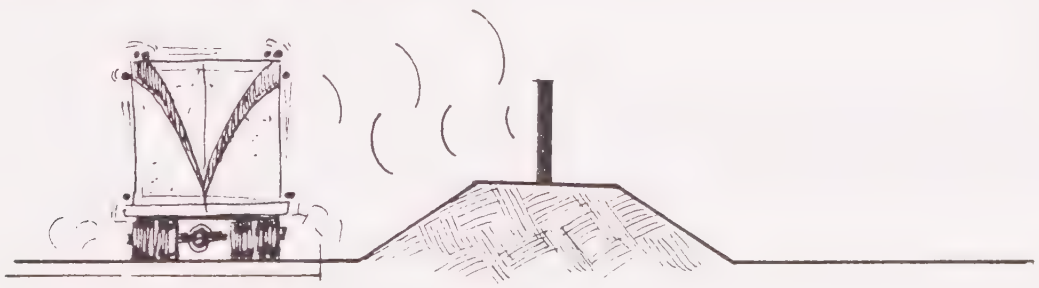
FIGURE IV-4-1

HIGHWAY NOISE BEHAVIOR EXAMPLE

A diesel truck makes 84 dBA at 60 ft. from the edge of pavement (assuming at grade road and flat open terrain).



To reduce the noise levels approximately in half, a noise shield of eleven feet high would be required.



[1]Technical Advisory Panel on Motor Vehicle Noise, Motor Vehicle Noise, Assembly Committee on Transportation, G.P.O., February, 1973, pp. C-23 to C-26.

Local areas experiencing an unfavorable noise impact may find that the requirement of barriers often is necessary to attenuate the noise because increasing separation distance from the source is often difficult and expensive and many streets are existing or committed in relation to land use.

If a new development is proposed for location in or near a noise impact zone, then private development can be required to provide barriers and/or set backs to attenuate the noise. For example, a wall of ten feet height around a new development could lessen sound propagation by the equivalent of moving the observer five times further away from the noise source. Attenuation by distance alone can be expensive because the distance in which development is not allowed can be rather large, and it would therefore be logical that a developer would favor use of walls and berm to gain the most effective use of the land. However, allowing noise attenuation along highways without some set-back is not always aesthetically desirable as 11 foot wals on both sides of a highway would produce the effect of driving in a tunnel. Thus, local planning agencies whose goal is to prevent the occurrence of a noise impacted area or attenuate the noise in an existing area should attempt not to rely on berm and barriers, but to use them in combination with set-backs.[1]

The degree or amount of mitigation required would depend upon the decibel levels adopted for the adjacent land use and the level of noise being generated.

Railroad Noise

While railroads produce high noise levels during operation, the duration of operations at any given point is limited. In addition, yard operations are confined to a few specific areas, and the area affected by railroad noise in the Fresno County Region is smaller than that affected by highways. However, with the rapid urbanization of the Fresno Metropolitan Region, there is an increasing number of residents that are being impacted by noise from railroads, and controls particularly between the hours of 10 p.m. and 7 a.m. must be placed on railroad operations in these areas.

An acoustical barrier (Figure 3) can produce a 20 dBa reduction in the noise produced by wheel-rail interaction and a 12 dBA reduction in locomotive noise at distances greater than 300 feet from the barrier.[2] Such barriers can also reduce the noise levels from yard activities. However, it should be emphasized that attenuation of railroad noise must use a combination of set-backs, berms and barriers to be effective, and this should be reflected in the philosophy of the planning agency responsible for the development of areas near railroads.

Aircraft Noise

As federal agencies preempt most local control over aircraft noise, the local planning agency can best prevent an adverse environment from aircraft noise by prohibiting residential development within the unacceptable areas of the airport noise contours.

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[1]CALTRANS, Policies for Noise Abatement, See Appendix L.

[2]Jack W. Swing and Donald B. Pies, Assessment of Noise Environment Aroun Railroad Operations, (Wyle Laboratories, July, 1973), pp. 3-71, 3-73.

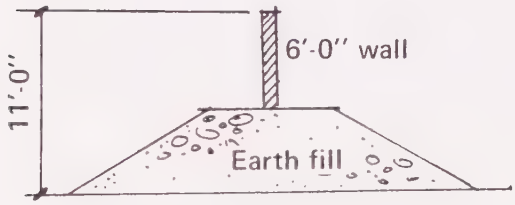
Building Design and Location

In addition to the use of the methods previously mentioned for noise attenuation, the design of a building and its orientation towards the noise source can play a significant role in the reduction of the noise impact. Although design would do little to reduce noise levels in the exterior environment, omitting windows on the side facing the source, adding insulation, thickening roofs, and building at an angle to the source are just a few of the items a local planning agency can require for reducing the noise impact.

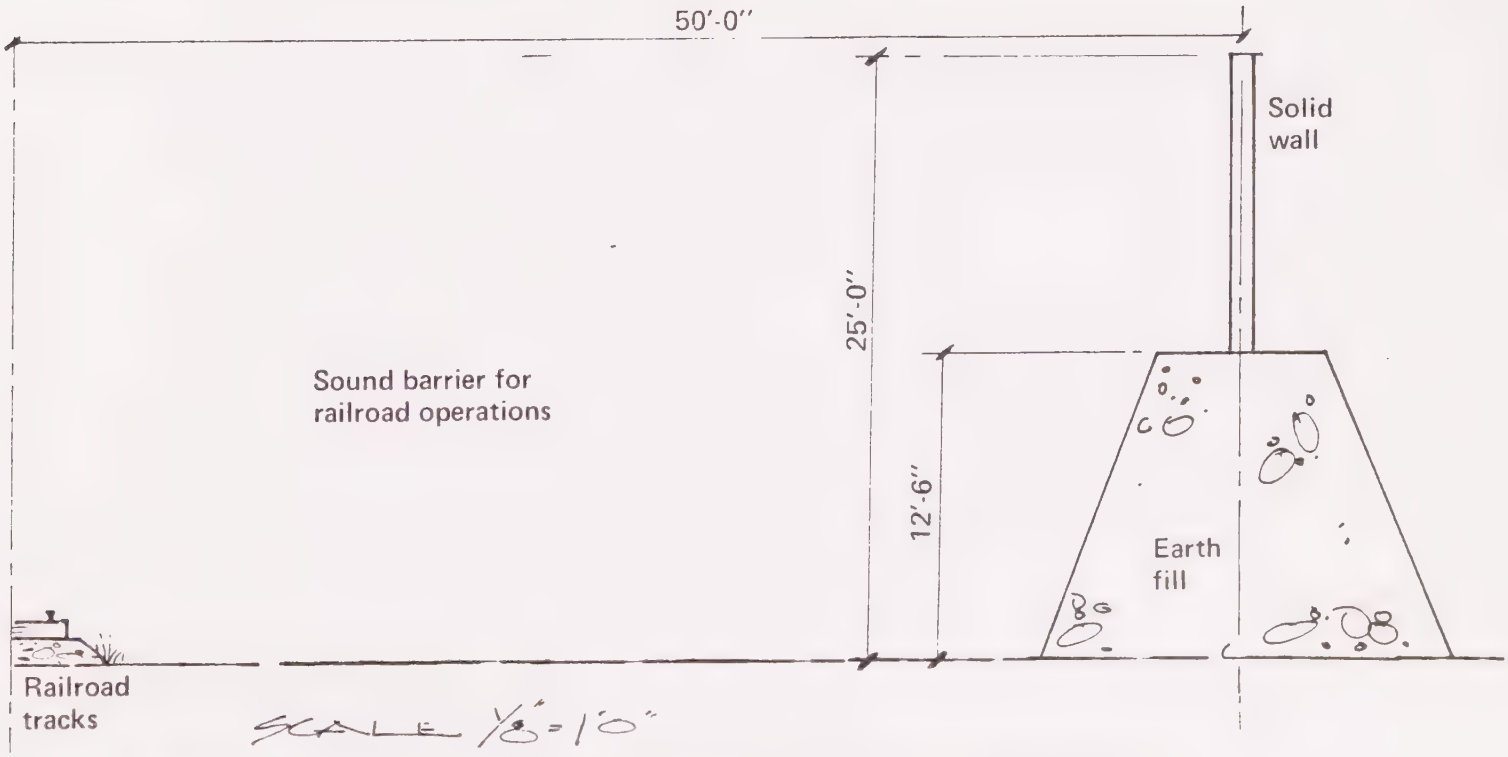
FIGURE 4-2

EXAMPLE OF NOISE BARRIER STANDARDS





Noise barrier for freeway at grade



Source: Motor Vehicle Noise, California State Assembly, Committee on Transportation

Private Mitigation Measures

Homeowners who live in a noise-impacted area or plan on building in an area where noise levels are higher than desirable can do much to reduce the interior noise levels in their homes. For instance, the addition of wall-to-wall carpeting, heavy drapes and ceiling insulation will reduce the noise levels in existing homes while the home under construction can utilize not only these measures but additional wall insulation, thicker windows and heavier roofing to provide sound attenuation.

Control of Local Noise by Adoption of a Noise Ordinance

The best method to control noise is to limit the noise output at the source. This, of course, is indicative of the efforts being made by the United States Environmental Protection Agency in attempting to rate the noise output of home appliances and to reduce noise from trucks and various other potential noise sources.

However, in the interim of receiving in the market place new products incorporating adequate acoustical design and before replacing existing noise sources with these new products, what can be done to provide relief from stationary and non-stationary noise sources? This relief can only be accomplished if local, State or Federal governmental agencies take appropriate action to abate existing or prevent developing of excessive noise conditions. A local noise control ordinance would appear to be the most logical way to attack the existing community noise problem.

Types of Noise Ordinance

There are four classes of local noise regulations that a community or region may adopt, and they are classified for effectiveness by the Federal Government as Class "A", "B", "C", or "D." The federal guidelines classify a Class "A" ordinance as the most effective and a Class "D" ordinance as the lease effective. An analysis of the classes are as follows:

1. Class "D" Type Noise Control Regulations:

   Class "D" regulations contain little or no reference to noise control. This type of noise control regulation utilizes language which generally indicates that no person shall create a public nuisance or distrub the peace. A typical example of a Class "D" type noise control regulation is Section 415 of the California State Penal Code. Class "D" type noise control regulations are n not recommended for adoption by local agencies because of the vagueness of the language and the anticipated difficulty in obtaining correction of noise problems.

2. Class "C" Type Noise Control Regulations:

   Class "C" regulations usually include the general body of a noise control statute and indicate in some manner that noise is a nuisance or is prohibited. These regulations, do not specify

quantitative noise standards or enforcement techniques other than possibly the discretionary issuance of a ticket by a local enforcement agency.

Class "C" type noise control regulations are not recommended for adoption by local agencies because of the difficulty of enforcement due to inadequate definitions such as "excessive noise," "unnecessary noise or sound" and "annoying to persons of ordinary sensitivity." It is anticipated that Class "C" type noise control regulations would be difficult to enforce.

3. Class "B" Type Noise Control Regulations:

Class "B" regulations contain some type of quantitative noise standard and also contain provisions for measurement and enforcement. Class "B" regulations may be acceptable for adoption under certain conditions, but they are not considered the best method to control noise and abate community noise problems because they utilize one noise standard for an entire city or region.

The particular noise standard may not be appropriate to prevent complaints from residents or other occupied areas although the alleged source is creating noise within the legal limits. The ordinance is not tailored for different types of residential zoning conditions or based on actual existing noise levels normal for a specific area. Class "B" noise control regulations, therefore, are not recommended for adoption.

4. Class "A" Type Noise Control Regulations:

Class "A" regulations have a higher degree of sophistication in statutory language relating to noise control than do any of the other classes. This class may include different quantitative noise standards for various areas and land use zones. Class "A" regulations also include specific requirements for detailed measurement and enforcement. The development of various quantitative noise limits for an area or land use zone may be based on actual existing noise levels in the specific area. Certain areas and land use zones may be assigned significantly different noise limits. Class "A" regulations are commonly referred to as a "performance standard" regulation.

An example of Class "A" type noise control regulations are the ordinances currently in effect in the cities of Fountain Valley and Costa Mesa, California, Orange County, California and the Model Ordinance developed by the Noise Committee of the National Environmental Health Association.

From the public health standpoint, it is not only necessary to abate periodic noise in a community, but also to control the growth of noise pollution. It is believed that a Class "A" type noise control regulation will enable abatement of most nuisance noise conditions and, if used as a planning tool, will assist in

the development of residential and other land use areas which are not subjected to irritating and nuisance noise conditions.

Model Noise Ordinance

The following Model Noise Ordinance was developed by the Noise Committee of the National Environmental Health Association, a professional organization whose membership is composed of Registered Sanitarians working in local, state and federal health agencies, and other industrial, commercial and private peoples who are interested in the field of environmental health. The ordinance is a performance standard that establishes maximum noise levels dependent on time, and is similar to the Model Noise Ordinance the State of California's Office of Noise Control is currently developing. The ordinance is included only as an example of the type of noise control proposed by this Element.

It should be noted that the optional section in the ordinance is intended to allow a violator of the ordinance fair and effective means of gaining additional time to comply with the ordinance.

PROPOSED

COMMUNITY NOISE AND

VIBRATION CONTROL ORDINANCE

ORDINANCE NO.

AN ORDINANCE OF THE CITY (COUNTY) OF ADDING CHAPTER TO TITLE OF THE MUNICIPAL CODE (COUNTY CODIFIED ORDINANCE) RELATING TO THE CONTROL OF NOISE AND VIBRATION.

SECTION A. The City Council (Board of Supervisors) of the City (County) of does ordain as follows:

ARTICLE I

Chapter is added to the Municipal Code (County) Codified Ordinances) to read as follows:

Section 1. Declaration of Policy
Section 2. Definitions.
Section 3. Decibel Measurement Criteria.
Section 4. Designated Noise Zones.
Section 5. Exterior Noise Standards.
Section 6. Interior Noise Standards
Section 7. Special Provisions.
Section 8. Schools, Hospitals and Churches -- Special Provisions
Section 9. Air Conditioning and Refrigeration -- Special Provisions.
Section 10. Noise Level Measurements.
Section 11. ~~Vi~~bration Standard.
Section 12. Proposed Developments.
Section 13. Variance Procedures. (optional)
Section 14. Noise Variance Board. (optional)
Section 15. Appeals. (optional)
Section 16. Prima Facie Violation.
Section 17. Violations: Misdemeanors.
Section 18. Violations: Additional Remedies -- Injunctions.
Section 19. Manner of Enforcement.
Section 20. Delay in Implementation -- Fixed Noise Sources.
Section 21. Serverability.

Section 1. Declaration of Policy

In order to control unnecessary, excessive and annoying noise and vibration in the City (County) of , it is hereby declared to be the policy of the City (County) to prohibit such noise and vibration generated from or by all sources as specified in this Chapter.

It is determined that certain noise levels and vibration are detrimental to the public health, welfare, and safety and contrary to public interest, and therefore, the City Council (Board of Supervisors) of the City (County) does ordain and declare that creating, maintaining, causing or allowing to be created, caused or maintained any noise or vibration in a manner prohibited by or not in conformity with the provisions of this Chapter, is a public nuisance and shall be punishable as such.

Section 2. Definitions.

The following words, phrases and terms as used in this Chapter shall have the meaning as indicated below:

(a) *Agricultural Property* shall mean a parcel of real property which is undeveloped for any use other than agricultural purposes.

(b) *Ambient Noise Level* shall mean the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

(c) *"A" Weighted Sound Level* shall mean the total sound level in decibels of all sound as measured with a sound level meter with a reference pressure of 20 micro-pascals per square meter using the "A" weighted network (scale) at slow response. The unit of measurement shall be defined as dB(A).

(d) *Commercial Property* shall mean a parcel of real property which is developed and used either in part or in whole for commercial purposes.

(e) *Cumulative Period* shall mean an additive period of time composed of individual time segments which may be continuous or interrupted.

(f) *Decibel* (dB) shall mean a unit which denotes the ratio between two (2) quantities which are proportional to power: the number of decibels corresponding to the ratio of two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

(g) *Emergency Machinery, Vehicle, Work or Alarm* shall mean any machinery, vehicle, work or alarm used, employed, performed or operated in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

(h) *Fixed Noise Source* shall mean a stationary device which creates sounds while fixed or motionless including but not limited to residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.

(i) *Grading* Shall mean any excavating or filling of earth material or any combination thereof conducted to prepare a site for construction or improvements thereon.

(j) *Health Officer* shall mean the Health Officer of the City (County) or his duly authorized deputy.

(k) *Impact Noise* shall mean the noise produced by the collision of one mass in motion with a second mass which may be either in motion or at rest.

(l) *Industrial Property* shall mean a parcel of real property which is developed and used either in part or in whole for manufacturing purposes.

(m) *Intruding Noise Level* shall mean the total sound level created, caused maintained or originating from an alleged offensive source in decibels at a specified location while the alleged offensive source is in operation.

(n) *Licensed* shall mean the issuance of a formal license or a permit by the appropriate jurisdictional authority, or where no pemits or licenses are issued, the sanctioning of the activity by the jurisdiction as noted in public record.

(o) *Major Roadway* shall mean any street, avenue, boulevard, or highway used for motor vehicle traffic which is owned or controlled by a public governmental entity with an average daily traffic flow of 30,000 or more vehicles.

(p) *Mobile Noise Source* shall mean any noise source other than a fixed noise source.

(q) *Person* shall mean a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

(r) *Residential Property* shall mean a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels.

(s) *Simple Tone Noise* shall mean a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished and, if measured, shall exist if the octave band sound pressure levels in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two continuous octave bands by 5 dB for frequencies of 500 hertz (Hz) and above, by 8 dB for frequencies between 160 and 400 Hz, and by 15 dB for frequencies less than or equal to 125 Hz.

(t) *Sound Level Meter* shall mean an instrument meeting American National Standard Institute's Standard S1.4-1971 or most recent revision thereof for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

(u) *Sound Pressure Level* of a sound, in decibels, shall mean twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated.

(v) *Vibration* shall mean any movement of the earth, ground or other similar surface created by a temporal and spacial oscillation of displacement, velocity or acceleration in any mechanical device or equipment located upon, attached, affixed or in conjunction with that surface.

Section 3. Decibel Measurement Criteria

Any decibel measurement made pursuant to the provisions of this Chapter shall be based on a reference sound pressure of 20 micro-pascals as measured with a sound level meter using the "A" weighted network (scale) at slow response.

Section 4. Designated Noise Zones

The properties hereinafter described are hereby assigned to the following noise zones:

NOISE ZONE I: All single or double family residential properties whether incorporated or unincorporated located at a distance more than 600 feet from a major roadway.

NOISE ZONE II: All single, double and multiple family residential properties whether incorporated or unincorporated located at a distance equal to or less than 600 feet from a major roadway.

NOISE ZONE III: All commercial properties whether incorporated or unincorporated.

NOISE ZONE IV: All manufacturing or industrial properties whether incorporated or unincorporated.

Section 5. Exterior Noise Standards

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all property with a designated noise zone:

NOISE ZONE	TYPE OF LAND USE	TIME INTERVAL	ALLOWABLE EXTERIOR NOISE LEVEL
I	Single or double family residential (R-1 & R-2)	10 pm to 7 am 7 am to 10 pm	45 dB(A) 50 dB(A)
II	Single, double or multiple family residential (R-1,R-2,R-3 & R-4)	10 pm to 7 am 7 am to 10 pm	50 dB(A) 55 dB(A)
III	Commercial (C-1,C-2, etc.)	10 pm to 7 am 7 am to 10 pm	60 dB(A) 65 dB(A)
IV	Industrial or manufacturing (M-1,M-2,etc. or I-1,I-2, etc.)	Anytime	70 dB(A)

(b) It shall be unlawful for any person at any location within the incorporated (unincorporated) area of the City (County) to create any noise, or to allow the creation of any noise on properly owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property either incorporated or unincorporated, to exceed:

(1) The noise standard for a cumulative period of more then thirty minutes in any hour; or

(2) The noise standard plus 5 dB(A) for a cumulative period of more than fifteen

minutes in any hour; or

(3) The noise standard plus 10 dB(A) for a cumulative period of more than five minutes in any hour; or

(4) The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour; or

(5) The noise standard plus 20 dB(A) for any period of time.

(c) In the event the ambient noise level exceeds any of the above five noise limit categories, the cumulative period applicable to said category shall be increased to reflect said ambient noise level.

(d) Each of the noise limits specified above shall be reduced by 5 dB(A) for impact or simple tone noises, or for noises consisting of speech or music.

(e) If the measurement location is on a boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.

(f) If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the source is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of day the noise level is measured.

(1) The reasonableness of temporarily discontinuing the noise generation by an intruding noise source shall be determined by the Health Officer or his duly authorized deputy for the purpose of establishing the existing ambient noise level at the measurement location.

Section 6. Interior Noise Standards

(a) The following noise standards, unless otherwise specifically indicated shall apply to all residential property within all noise zones:

NOISE ZONE	TYPE OF LAND USE	TIME INTERVAL	ALLOWABLE EXTERI NOISE LEVEL
All	Residential	10 pm to 7 am	45 dB(A)
		7 am to 10 pm	55 dB(A)

(b) It shall be unlawful for any person at any location within the incorporated (unincorporated) area of the City (County) to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level when measured within a residential dwelling unit in any noise zone to exceed:

(1) The noise standard for a cumulative period of more than five (5) minutes in any hour; or

(2) The noise standard plus five (5) dB(A) for a cumulative period of more than one (1) minute in any hour; or

(3) The noise standard plus ten (10) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds any of the above three noise limit categories; the cumulative period applicable to said category shall be increased to reflect said ambient noise level.

(d) If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, the same procedures specified in Section 5, (f), shall be deemed proper to enforce the provisions of this Section.

Section 7. Special Provisions

The following activities shall be exempted from the provisions of this Chapter:

(a) Activities conducted on public parks, public playgrounds and public or private school grounds including but not limited to school athletic and school entertainment events.

(b) Outdoor gatherings, public dances, shows and sporting and entertainment events provided said events are conducted pursuant to a permit or license issued by the jurisdiction relative to the staging of said events.

(c) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle, work or warning alarm or bell provided the sounding of any bell of alarm on any building or motor vehicle unless such alarm shall terminate its operation within 30 minutes in any hour of its being activated.

(d) Noise sources associated with or vibration created by construction, repair, remodeling or grading of any real property or during authorized seismic surveys, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday, and provided the noise level created by such activities do not exceed the noise standard of 60 dB(A) plus the limits specified in Section 5(b) as measured on residential property and any vibration created does not endanger the public health, welfare and safety.

(e) All mechanical devices, apparatus or equipment associated with agricultural operations provided:

(1) Operations do not take place between 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday or at any time on Sunday or a federal holiday, or

(2) Such operations and equipment are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions, or

(3) Such operations and equipment are associated with agricultural pest control through pesticide application provided the application is made in accordance with permits issued by or regulations enforced by the Department of Agriculture.

(f) Noise sources associated with the maintenance of real property provided said activities take place between the hours of 7:00 a.m. and 8:00 p.m. on any day except Sunday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday. Until January 1, 1980, lawn mowers, edgers and similar lawn and garden maintenance equipment shall be exempted as part of this provision.

(g) Any activity to the extent regulation thereof has been preempted by State or federal law.

Section 8. Schools, Hospitals, Churches, Libraries, etc. -- Special Provisions

It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital, church or library while the same is in use, to exceed the noise standards specified in Section 5 prescribed for the assigned noise zone in which the school, hospital, church or library is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in a hospital, provided conspicuous signs are displayed in three separate locations within one-tenth (1/10) mile of the institution or facility indicating a quiet zone.

Section 9. Air Conditioning and Refrigeration -- Special Provisions

Until January 1, 1980, the noise standards enumerated in Section 5 and 6 shall be increased 5 dB(A) where the alleged intruding noise source is an air conditioning or refrigeration system or associated equipment which was installed prior to the effective date of the Ordinance.

Section 10. Noise Level Measurement

The location selected for measuring exterior noise levels shall be at any point on the affected property. Interior noise measurements shall be made within the affected residential unit. The measurements shall be made at a point at least four (4) feet from the wall, ceiling or floor nearest the noise source.

Section 11. Vibration

Notwithstanding other sections of this Chapter, it shall be unlawful for any person to create, maintain or cause any ground vibration which is perceptible without instruments at any point on any affected property adjoining the property on which the vibration source is located. For the purpose of this Ordinance, the perception threshold shall be presumed to be more than 0.05 inches per second RNS verticle velocity.

Section 12. Proposed Developments

Each Department whose duty it is to review and approve new projects or changes to existing projects that result or may result in the creation of noise shall consult with the Health Officer prior to any such approval. If at any time the Health Officer has reason to believe that a standard, regulation or action or proposed standard, regulation or action of any Department respecting noise does not conform to the provisions as specified in this Ordinance, the Health Officer may request such Department to consult with him on the advisability of revising such standard or regulation to obtain uniformity.

Section 13. Variance Procedure (optional)

The owner or operator of a noise or vibration source which violates any of the provisions of this Chapter may file an application with the Health Officer for a variance from the provisions thereof wherein said owner or operator shall set forth all actions taken to comply with said provisions, the reasons why immediate compliance cannot be achieved, a proposed method of achieving compliance, and a proposed time schedule for its accomplishment. The application shall be accompanied by a fee in the amount of seventy-five dollars ($75.00). A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership, or several fixed sources on a single property may be combined into one application. Upon receipt of said application and fee, the Health Officer shall refer it with his recommendations thereon within thirty (30) days to the Noise Variance Board for action thereon in accordance with the provisions of this Chapter.

An applicant for a variance shall remain subject to prosecution under the terms of this Ordinance until a variance is granted.

Section 14. Noise Variance Board (optional)

There is hereby created a Noise Variance Board consisting of five (5) members: Two (2) of the members shall be professional engineers, one of whom shall have demonstrated knowledge and experience in the field of acoustics, the other shall be a registered mechanical engineer. One (1) member shall be a physician licensed in this State and qualified in the field of physiological effects of noise; one (1) member a representative of business and industry, and one (1) member a representative of the general public.

The Noise Variance Board shall evaluate all applications for variance from the requirements of this Chapter and may grant said variances with respect to time for compliance, subject to such terms, conditions and requirements as it may deem reasonable to achieve maximum compliance with the provisions of this Chapter. Said terms, conditions and requirements may include, but shall not be limited to limitation on noise levels and operating hours. Each such variance shall set forth in detail the approved method of achieving maximum compliance and a time schedule for its accomplishment. In its determinations said Board shall consider the following:

1. The magnitude of nuisance caused by the offensive noise.
2. The uses of property within the area of impingement by the noise.
3. The time factors related to study, design, financing and construction of remedial work.
4. The economic factors related to age and useful life of the equipment.
5. The general public interest, welfare and safety.

Any variance granted by said Board shall be by resolution and shall be transmitted to the Health Officer for enforcement. Any violation of the terms of said variance shall be unlawful.

Members of the Variance Board shall be appointed by and shall serve at the pleasure of the City Council (Board of Supervisors) and shall be reimbursed a total of fifteen dollars ($15.00) for each meeting at which an application for variance is heard.

Said Board shall adopt reasonable rules and regulations for its own procedures in carrying out its functions under the provision of this Chapter. Three members shall constitute a quorum and at least three affirmative votes shall be required in support of any action.

The Health Officer, or his appointed representative, shall be a nonvoting ex-officio member of the Variance Board and shall act as Secretary of the Noise Variance Board.

Meetings of the Noise Variance Board shall be held at the call of the Secretary and at such times and locations as said Board shall determine. All such meetings shall be open to the public.

Section 15. Appeals (optional)

Within fifteen (15) days following the decision of the Noise Variance Board on an application, the applicant, the Health Officer or any member of the City Council (Board of Supervisors) may appeal the decision to the City Council (Board of Supervisors) by filing a notice of appeal with the Secretary of the Noise Variance Board. In the case of an appeal by the applicant for a variance, the notice of appeal shall be accompanied by a fee to be computed by the Secretary of the Noise Variance Board on the basis of the estimated cost of preparing the materials required to be forwarded to the City Council (Board of Supervisors) as discussed hereafter. If the actual cost of such preparation differs from the estimated cost, appropriate payments shall be made either to or by the Secretary.

Within fifteen (15) days following receipt of a notice of appeal and the appeal fee, the Secretary of the Noise Variance Board shall forward to the City Council (Board of Supervisors) copies of the application for variance; the recommendation of the Health Officer; the notice of appeal; all evidence concerning said application received by the Noise Variance Board and its decision thereon. In addition, any person may file with the City Council written arguments supporting or attacking said decision of the Noise Variance Board, and the City Council (Board of Supervisors) may in its discretion hear oral arguments thereon. The City Clerk (Clerk of the Board of Supervisors) shall mail to the applicant a notice of the date set for hearing of the appeal. The notice shall be mailed at least ten (10) days prior to the hearing date.

Within sixty (60) days following its receipt of the notice of the appeal, the City Council (Board of Supervisors) shall either affirm, modify or reverse the decision of the Noise Variance Board. Such decision shall be based upon the City Council's (Board of Supervisor's) evaluation of the matters submitted to the City Council (Board of Supervisors) in light of the powers conferred on the Noise Variance Board and the factors to be considered, both as enumerated in Sections 13 and 14.

As part of its decision the City Council (Board of Supervisors) may direct the Noise Variance Board to conduct further proceedings on said application. Failure of the City Council (Board of Supervisors) to affirm, modify or reverse the decision of the Noise Variance Board within said sixty (60) day period shall constitute an affirmance of the Noise Variance Board's decision.

Section 16. Prima Facie Violation

Any noise exceeding the noise level standards for a designated noise zone as specified in Section 5 and 6 or vibration exceeding the standard as specified in Section 11 of this Chapter, shall be deemed to be prima facie evidence of a violation of the provisions of this Chapter.

Section 17. Violations: Misdemeanors

Any person violating any of the provisions of this Chapter shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined in an amount not to exceed five hundred dollars ($500.00) or be imprisoned in the City (County) Jail for a period not to exceed six (6) months or by both such fine and imprisonment. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such.

Section 18. Violations: Additional Remedies – Injunctions

As an additional remedy, the operation or maintenance of any device, instrument, vehicle or machinery in violation of any provisions of this Chapter which operation or maintenance causes or creates sound levels or vibration exceeding the allowable standards as specified in this Chapter shall be deemed and is hereby declared to be a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court of competent jurisdiction.

Any violations of this Chapter is declared to be a public nuisance and may be abated in accordance with law. The expense of such abatement may be by resolution of the City (County) Council (Board of Supervisors) declared to be a lien against the property on which such nuisance is maintained, and such lien shall be made a personal obligation of the property owner.

Section 19. Manner of Enforcement

The City (County) Health Officer and his duly authorized representatives are directed to enforce the provisions of this Chapter and are hereby authorized and may arrest at his discretion, any person without a warrant when he has reasonable cause to believe that such person has committed a misdemeanor in his presence.

No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this Chapter while such person is engaged in the performance of his duty.

Violations of this Chapter shall be prosecuted in the same manner as other misdemeanor violations of the City (County) Codes, provided, however, that in the event of an initial violation of the provisions of this Chapter, a written notice shall be given the alleged violator which specifies the time by which the condition shall be corrected or an application shall be received by the Health Officer. No compliant of further action shall be taken in the event the cause of the violation has been removed, the condition abated or fully corrected within the time period specified in the written notice.

In the event the alleged violator cannot be located in order to serve the notice of intention to prosecute, the notice as required herein shall be deemed to be given upon mailing such notice by registered or certified mail to the alleged violator at his last known address or at the place where the violation occurred in which event the specified time period for abating the violation or applying for a variance shall commence at the date of the day following the mailing of such notice. Subsequent violations of the same offense shall result in the immediate filing of a misdemeanor complaint.

Section 20. Delay in Implementation – Fixed Noise Sources

None of the provisions of this Chapter shall apply to a fixed sound source during the period commencing the effective date of this Chapter and terminating ninety (90) days thereafter.

Section 21. Serverability

If any provision, clause, sentence, or paragraph of this Chapter, or the application thereof to any person or circumstance, shall be held invalid, such invalidity shall not affect the other provisions or application of the provisions of this Chapter which can be given effect without the invalid provisions or application and, to this end, the provisions of this Chapter are hereby declared to be serverable.

SECTION B. The City (County) Clerk shall Certify to the passage of Adoption of this Chapter and to its approval by the City Council (Board of Supervisors) of the City (County) of

The Comprehensive Community Noise Control Program

A community noise control program in an incorporated city or unincorporated region must combine land use planning for quiet environments, local enforcement of State regulations concerned with vehicle noise, enforcement of local noise control ordinances and a program of intergovernmental agency cooperation if the program is to successfully decrease existing sound level or prevent additional areas from becoming impacted by noise.

As previously indicated, local planning agencies should establish land use policies based on compatibility of land uses, while local police agencies should enforce state laws dealing with vehicular noise. In addition to state laws concerning vehicular noise, local Building and Safety Departments are also responsible with enforcing Article 4 of Chapter 1, Subchapter 1, Title 25 of the California Administrative Code, which delineates noise insulation standards for the new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are located in noise critical areas (CNEL 60 dB or above).

A local noise control ordinance can be enforced entirely be agencies within an incorporated city, or the city may desire to utilize the monitoring services available through the Fresno County Environmental Health Service. There are two main sources of noise classification--that of nonsporadic stationary noise sources and sporadic stationary or nonstationary noise sources. The first of these, nonsporadic, includes the noisy residential air condition, industrial noise impacting a residential area or race track noise and necessitates an in-depth monitoring project to determine a violation or correction of a violation. Violators in this category may desire a variance if one is available through the adopted ordinance, in which case the city could establish a Noise Variance Board or utilize the proposed Fresno County Noise Variance Board.

Sporadic noise sources such as loud parties or barking dogs can be corrected most quickly by local police agencies, who can use professional judgment as to the objectivity of the noise or use sound level meters to base their decision upon. In addition, the monitoring ability of the Health Department would be available to the incorporated cities.

Local agencies also have the authority to determine and require correction of a violation of a permitted land use such as a Conditional Use Permit. Such an action would be the responsibility of the local Planning Department, with monitoring or advisory services available through the Fresno County Environmental Health Services.

Local agencies can do much to control community noise through the passage and enforcement of noise ordinances and timely land use planning, but such control throughout the Fresno County region also requires intergovernmental cooperation. For instance, local cities choosing to adopt noise ordinances should attempt to make the ordinance compatible with other cities' ordinances as well as with the proposed Fresno County Noise Ordinance. Local agencies should not hesitate to obtain assistance in solving noise problems from such agencies as CALTRANS, the State Office of Noise Control or the Environmental Health Services, and land use policies should be coordinated with the nearby city and county agencies so that effective policies can be implemented equally.

In order to implement noise control programs that are regionally effective, it is recommended that a noise evaluation committee be organized in Fresno County. Such a committee would serve to coordinate the noise programs of the incorporated and unincorporated areas of Fresno County, and could serve as a technical advisory committee to the same agencies. This committee should either be composed of members from the Department of Health, Planning, Building Inspection, Public Works, Sheriff and representatives from each incorporated city and other citizen members, all of whom should be appointed by the Board of Supervisors or should be composed of the existing Council of Fresno County Governments' Subcommittee on Planning and Land Use.

Public Information Program

There are currently pamphlets, a film and other information on noise and its control that are available to the public both from the Environmental Health Services and COG. In addition, the Office of Public Information of the Fresno County Department of Health is currently charged with maintaining liaison with local media agencies and routing requests for information to the appropriate agency.

Establishment of Future Program Needs

An effective regional noise control program should be an on-going program where constant data input is provided and the program goals are changed as indicated by needs. Therefore, it is recommended that the following measures be implemented as soon as possible.

1. Potential noise problem areas be defined and appropriate planning to reduce the noise impact be included in the Noise Elements of the General Plan of the concerned jurisdiction. Such a definition would be in addition to this Noise Element, and should be done by a joint effort of the governmental jurisdiction in the problem area, the Environmental Health Services and the Council of Fresno County Governments, and Fresno County Planning Department.

2. The sensitive receivers (schools, rest-homes, hospitals and parks) in the unincorporated areas of Fresno County be monitored to determine the existing ambient noise levels and this data be included in the original Fresno County Noise Element. This monitoring should be performed by the Fresno County Environmental Health Services.

3. Instrumentation capable of monitoring community noise levels for an extended period of time (minimum of 24 hours) be procured and utilized in the communities of Fresno County. These instruments should be procured and operated by the Environmental Health Services, and all data be forwarded to the respective community and the Noise Evaluation Committee for appropriate consideration.

4. Separate automobile and truck counts be developed for the major county roads by the Fresno County Department of Public Works.

5. The noise contours included in this element be updated as justified, and contours for the major county highways be developed and included in the Fresno County Noise Element. This should be completed through the efforts of the Fresno County Departments of Public Works, Planning, Environmental Health Services, the Council of Fresno County Governments and the California Department of Transportation (CALTRANS).

GLOSSARY

ACOUSTICS -- (1) The science of sound, including the generation, transmission, and effects of sound waves, both audible and inaudible. (2) The sum of the physical qualities which determine the value of an enclosure (as an auditorium) to distinct hearing.

AMBIENT NOISE -- The all-encompassing noise associated with a given environment.

AMPLITUDE -- For a pressure wave in air, the maximum value of $P - P_A$. (See Sound Pressure.)

ATTENUATION -- Decrease in sound level, as when the observer increases his distance from the source; can be calculated in air by using the inverse first power law for pressure.

AUDIBLE RANGE (OF FREQUENCY) (AUDIO-FREQUENCY RANGE). The frequency range 16 Hz to 20,000 Hx (20 kHz). Note: This is conventionally taken to be the normal frequency range of human hearing.

AUDIOMETER -- An instrument for measuring the threshold or sensitivity of hearing.

AUDIOMETRY -- The measurement of hearing.

A-WEIGHTED SCALE -- A sound measurement scale which corrects the pressure of individual frequencies according to human sensitivities. The scale is based upon the fact that the region of highest sensitivity for the average ear is between 2,000 and 4,000 Hz. The unit is decibel (A), or just dBA.

BROAD-BAND NOISE -- Noise whose energy is distributed over a broad range of frequency (generally speaking, more than one octave).

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL) -- A measure of the cumulative noise exposure in the community, with greater weights applied to evening and nighttime periods. Day is defined as 7 a.m. to 7 p.m., and this period has a weighting factor of one; evening is 7 p.m. to 10 p.m. and has a weighting factor of three; and night is from 10 p.m. to 7 a.m. and has a weighting factor of ten.

CONTINUOUS NOISE -- On-going noise whose intensity remains at a measurable level (which may vary) without interruption over an indefinite period or a specified period of time.

CYCLES PER SECOND -- See Hertz.

DAY-NIGHT AVERAGE SOUND LEVEL (L_{dn}) -- The same as CNEL except that the evening time period is not considered separately, but instead it is included as part of the daytime period.

DEAFNESS -- 100 percent impairment of hearing associated with an otological condition. Note: This is defined for medical and cognate purposes in terms of the hearing threshold level for speech or the average hearing threshold level for pure tones of 500, 1000 and 2000 Hz in excess of 92 dB.

DECIBEL -- The unit of sound pressure level expressed by the formula $L = 20 \log_{10} (P/P_0)$. (See Sound Pressure Level.) One decibel (dB) is the approximate minimum change of sound pressure level detectable by the average human ear.

ENVIRONMENTAL NOISE -- By Sec. 3 (11) of the Noise Control Act of 1972, the term "environmental noise" means the intensity, duration, and character of sounds from all sources.

EQUIVALENT SOUND LEVEL -- The level of a constant sound which, in a given situation and time period, has the same sound energy as does a time-varying sound. Technically, equivalent sound level is the level of the time-weighted, mean square, A-weighted sound pressure. The time interval over which the measurement is taken should always be specified.

FIXED SOURCE -- A stationary noise generator such as a manufacturing plant.

FREQUENCY -- The difference in sound pressure level between the threshold sound for a person (or the median value or the average for a group) and the reference sound pressure level defining the ASA standard audiometric threshold (ASA: 1951). Note: The term is now commonly used to mean hearing threshold level (qv). Units: decibels.

HERTZ -- A unit for expressing frequency. One Hertz (abbreviated Hz) equals one cycle per second.

IMPULSE NOISE (IMPULSIVE NOISE) -- Noise of short duration (typically, less than one second) especially of high intensity, abrupt onset and rapid decay, and often rapidly changing spectral composition. Note: Impulse noise is characteristically associated with such sources as explosions, impacts, the discharge of firearms, the passage of super-sonic aircraft (sonic boom) and many industrial processes.

INFRASONIC -- Having a frequency below the audible range for man (customarily deemed to cut off at 16 Hz).

INTERMITTENT SOUND -- Fluctuating sound whose level falls one or more times to low or unmeasurable values during an exposure.

LINE SOURCE -- The term applied to a corridor of many moving noise generators such as a highway or railway.

LOGARITHM -- The exponent that indicated the power to which a number is raised to produce a given number. That is, the logarithm of 100 to the base 10 is 2, and 10^2 is equal to 100.

LOUDNESS -- A listener's perception of sound pressure incident on his ear.

L_{10} or L_{50} -- L_{10} is the highest level of noise exceeded ten percent of the time. L_{50} is the noise exceeded fifty percent of the time.

NARROW-BAND SOUND -- A sound whose waveform contains an admixture of sine waves having frequencies which lie close to each other.

NOISE -- Unwanted sound; sound which lacks musical quality; sound which conveys no useful information to the listener.

NOISE CONTOURS -- Line passing through points where the same sound level prevails.

NOISE EXPOSURE -- The cumulative acoustic stimulation reaching the ear of the person over a specified period of time (eg., a work shift, a day, a working life, or a lifetime).

NOISE HAZARD (HAZARDOUS NOISE) -- Acoustic stimulation of the ear which is likely to produce noise-induced permanent threshold shift in some of a population.

NOISE IMPACT ZONE -- An area bordered by noise contours which indicate the area is strongly affected by noise.

NOISE INDUCED PERMANENT THRESHOLD SHIFT (NIPTS) -- Permanent threshold shift caused by noise exposure, corrected for the effect of aging (presbyacusis).

NOISE-INDUCED TEMPORARY THRESHOLD SHIFT (NITTS) -- Temporary threshold shift caused by noise exposure.

NON-LINEAR -- Not directly proportional to the input.

NON-VOLUNTARY EXPOSURE TO ENVIRONMENTAL NOISE -- The exposure of an individual to sound which (1) the individual cannot avoid or (2) the sound serves no useful purpose (e.g., the exposure to traffic noise or exposure to noise from a lawn mower).

PASCAL -- A standard unit for measuring sound pressure; equal to one Newton of force per square meter, or approximately 7.23 pounds, One micro-pascal equals 10^{-6} pascals.

PEAK SOUND PRESSURE -- The absolute maximum value (magnitude) of the instantaneous sound pressure occurring in a specified period of time.

PERIOD -- Time interval between the arrival of successive repetitions of a waveform.

PITCH -- A listener's perception of the frequency of a sound.

PRESBYACUSIS (PRESBYCUSIS) -- Hearing loss, chiefly involving the higher audiometric frequencies above 3000 Hz, ascribed to advancing age.

PURE TONE -- A sound whose waveform is a single sine wave.

RANDOM NOISE -- A noise whose amplitude varies irregularly in time.

RISK -- That percentage of a population whose hearing level, as a result of a given influence, exceeds the specified value, minus that percentage whose hearing level would have exceeded the specified value in the absence of that influence, other factors remaining the same. Note: The influence may be noise, age, disease, or a combination of factors.

SENEL -- Single Event Noise Exposure Level.

SENSITIVE RECEIVER -- Land uses that require lower ambient noise levels such as schools, parks, hospitals, and convalescent homes.

SOUND -- Mechanical radiant energy that is transmitted by longitudinal pressure waves in a material medium (like air).

SOUND INTENSITY -- See Loudness.

SOUND LEVEL -- The quantity in decibels measured by a sound level meter satisfying the requirements of American National Standards Specification for Sound Level Meters S1.4-1971. Sound level is the frequency-weighted sound pressure level obtained with the standardized dynamic characteristic "fast" or "slow" and weighting A, B, or C; unless indicated otherwise, the A-weighting is understood. The unit of any sound level is the decibel, having the unit symbol dB.

SOUND EXPOSURE LEVEL -- The level of sound accumulated over a given time interval or event. Technically, the sound exposure level is the level of the time-integrated mean square A-weighted sound for a stated time interval or event with a reference time of one second.

SOUND METER -- An instrument consisting of a microphone, an amplifier, an output meter, and frequency weighting networks; used for measurement of sound levels.

SOUND PRESSURE -- The total instantaneous pressure at a particular point in the presence of a sound wave minus the static pressure at that point; equals $P - P_A$.

SOUND PRESSURE LEVEL -- A quantity, expressed in decibels, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of this sound to the reference pressure. The reference pressure is P_0 = 20 micropascals. The formula is $L = 20 \log_{10} P/P_0$.

SPEECH DISCRIMINATION -- The ability to distinguish and understand speech signals.

STEADY SOUND -- A sound whose characteristics remain constant in time.

TEMPORARY THRESHOLD SHIFT (TTS) -- That component of threshold shift which shows a progressive reduction with the passage of time after the apparent cause has been removed.

THRESHOLD OF HEARING (AUDIBILITY) -- The minimum effective sound pressure level of an acoustic signal capable of exciting the sensation of hearing in a specified proportion of trails in prescribed conditions of listening.

TONE QUALITY -- A listener's perception of the waveform of a sound.

ULTRASONIC -- Having a frequency above the audible range for man (conventionally deemed to cut off at 20.000 Hz).

WAVEFORM -- The shape of a curve defining a particular type of wave motion.

WAVE MOTION -- A transfer of energy from one point to another without physical transfer of material between the points; accomplished in a material medium such as air through oscillations induced in the individual molecules of the medium.

APPENDIX A
U.S. ENVIRONMENTAL PROTECTION AGENCY IDENTIFIED LEVELS OF ENVIRONMENTAL NOISE IN DEFINED AREAS

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) IDENTIFIED LEVELS OF ENVIRONMENTAL NOISE IN DEFINED AREAS

A. Identified Levels

Table A-1 identifies the levels requisite to protect health and welfare with an adequate margin of safety for both activity interference and hearing loss. The table classifies the various areas according to the primary activities that are most likely to occur in each. The following is a brief description of each classification and a discussion of the basis for the identified levels in Table A-1.

The L_{dn}, used by EPA, is a time-weighted scale applied to intense but intermittent noise exposure events which puts a mathematical penalty on noise events that occur during night hours. (See Appendix for detailed explanation.)

The L_{eq} is the equivalent L_{dn} "A" weighted sound level over a given time interval. L_{eq} (24) is the sound level averaged over 24 hours. L_{eq} (8) would be the sound level averaged over hours.

Equivalent Sound Level is formulated in terms of the equivalent steady noise level which in a stated period of time would contain the same noise energy as the more intense, but intermittent, noise being weighted by L_{dn} during the same time period.

1. Residential areas are areas where human beings live, including apartments, seasonal residences, and mobile homes, as well as year-round residences. A quiet environment is necessary in both urban and rural residential areas in order to prevent activity interference and annoyance, and to permit the hearing mechanism to recuperate if it is exposed to higher levels of noise during other periods of the day.

An indoor L_{dn} of 45 decibels will permit speech communication in the home, while an outdoor L_{dn} not exceeding 55 decibels will permit normal speech communication at approximately 40 decibels with windows partly open for ventilation. The nighttime portion of this L_{dn} will be approximately 32 decibels which should in most cases, protect against sleep interference. An L_{eq} (24) of 70 decibels is identified as protecting against damage to hearing.

Although there is separate category for commercial areas, commercial living accommodations such as hotels, motels, cottages, and inns should be included in the residential category since these are places where people sleep and sometimes spend extended periods of time.

TABLE A-1

YEARLY AVERAGE* EQUIVALENT SOUND LEVELS IDENTIFIED AS REQUISITE TO PROTECT THE PUBLIC HEALTH AND WELFARE WITH AN ADEQUATE MARGIN OF SAFETY

		Indoor			Outdoor		
	Measure	Activity Interference	Hearing Loss Consideration	To Protect Against Both Effects (b)	Activity Interference	Hearing Loss Consideration	To Protect Against Both Effects (b)
1. Residential with outside space and farm residences	L_{dn}	45		45	55		55
	L_{eq}		70			70	
Residential with no outside space	L_{dn}	45		45			
	L_{eq} (24)		70				
2. Commercial	L_{eq}	(a)	70	70(c)	(a)	70	70(c)
3. Inside Transportation	L_{eq} (24)						
	L_{eq} (24)	(a)	70	(a)			
4. Industrial	L_{eq} (24)[d]	(a)	70	70(c)	(a)	70	70(c)
5. Hospitals	L_{dn}	45		45	55		55
	L_{eq} (24)		70			70	
6. Educational	L_{eq} (24)	45		45	55		55
	L_{eq} (24)[d]		70			70	
7. Recreational areas	L_{eq}	(a)	70	70(c)	(a)	70	70(c)
8. Farm Land and General Unpopulated Land	L_{eq} (24)				(a)	70	70(c)

Explanation of identified level for hearing loss: The exposure period which results in hearing loss at the identified level is a period of 40 years.

Legend: a. Since different types of activities appear to be associated with different levels, identification of a maximum level for activity interference may be difficult except in those circumstances where speech communication is a critical activity.

b. Based on lowest level.

c. Based only on hearing loss.

d. An $L_{eq}(8)$ of 75 decibels may be identified in these situations so long as the exposure over the remaining 16 hours per day is low enough to result in a negligible contribution to the 24-hour average, i.e., no greater than an L_{eq} of 60 decibels.

* Refers to energy rather than arithmetic averages.

2. Commercial areas include retail and financial service facilities, offices, and miscellaneous commercial services. They do not include warehouses, manufacturing plants, and other industrial facilities, which are included in the industrial classification.

3. Transportation facilities are included so as to protect individuals using public and private transportation. Included within this classification are commercial and private transportation vehicles. Identification of a level to protect against hearing loss is the only criterion used at this time, although levels lower than an L_{eq} of 70 decibels are often desirable for effective speech communication. However, because of the great variety of conditions inside transportation vehicles, and because of the desirability of speech privacy in certain situations, a level based on activity interference cannot be identified for all modes of transportation at this time.

4. Industrial areas include such facilities as manufacturing plants, warehouses, storage areas, distribution facilities, and mining operations. Only a level for hearing loss is identified due to the lack of data with respect to annoyance and activity interference. Where the noise exposure is intermittent, an L_{eq} (24) of 70 decibels is identified as the maximum level for protection of hearing from industrial exposure to intermittent noise. For 8-hour exposures, an L_{eq} (8) of 75 decibels is considered appropriate so long as the exposure over the remaining 16 hours per day is low enough to result in a negligible contribution to the 24-hour average.

5. Hospital areas include the immediate neighborhood of the hosptial as well as its interior. A quiet environment is required in hospital areas because of the importance of sleep and adequate rest to the recovery of patients. The maintenance of a noise level not exceeding an L_{dn} of 45 decibels in the indoor hospital environment is deemed adequate to prevent activity interference and annoyance. An outdoor L_{dn} of 55 decibels should be adequate to protect patients who spend time outside, as well as insuring an adequately protective indoor level. An L_{eq} (24) decibels is identified to prevent hearing loss.

6. Educational areas include classrooms, auditoriums, schools in general, and those grounds not used for athletics. The principal consideration in the education environment is the prevention of interference with activities, particularly speech communication. An indoor noise level not exceeding L_{eq} (24) of 45 decibels is identified as adequate to facilitate thought and communication. Since teaching is occasionally conducted outside the classroom, an outdoor L_{eq} (24) of 55 decibels is identified as the maximum level to prevent activity interference. To protect against hearing loss an L_{eq} (24) of 70 decibels is identified for both indoor and outdoor environments. As in the industrial situation, eight hours is generally the amount of time spent in education facilities. Therefore an L_{eq} (8) of 75 decibels is considered appropriate to protect against hearing loss, so long as the exposure over the remaining 16 hours is low enough to result in a negligible contribution to the 24-hour average.

7. Recreational areas include facilities where noise exposure is voluntary. Included within this classification are nightclubs, theaters, stadiums, racetracks, beaches, amusement parks, and athletic fields. Since sound exposure in such areas is usually voluntary, there is seldom any interference with the

desired activity. Consequently, the chief consideration is the protection of hearing. An L_{eq} (24) of 70 decibels is therefore identified for intermittent noise in order to prevent hearing damage.

8. Farm and general unpopulated land primarily includes agricultural property used for the production of crops or livestock. For such areas, the primary considerations are the protection of human hearing and the prevention of adverse effects on domestic and wild animals. Protection of hearing requires that an individual's exposure to intermittent noise does not exceed L_{eq} (24) of 70 decibels. A separate level for the exposure of animals is not identified due to the lack of data indicating that hearing damage risk for animals is substantially different from that of humans. The unpopulated areas include wilderness areas, parks, game refuges, and other areas that are set aside to provide enjoyment of the outdoors. Although quiet is not always of paramount importance in such areas, many individuals enjoy the special qualities of serenity and tranquillity found in natural areas. At this time it is not possible to identify an appropriate level to prevent activity interference and annoyance. However, when it becomes possible to set such a level, a clear distinction should be made between natural and man-made noise.

APPENDIX B
CALIFORNIA
ADMINISTRATIVE
CODE, TITLE 25

CALIFORNIA ADMINISTRATIVE CODE

NOISE INSULATION STANDARDS

T25-1092. Noise Insulation Standards.

(a) Purpose. The purpose of this article is to establish uniform minimum noise insulation performance standards to protect persons within new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings from the effects of excessive noise, including but not limited to hearing loss or impairment and persistent interference with speech and sleep.

(b) Application and Scope. The provisions of this article relating to noise insulation performance standards apply to new hotels, motels, apartment houses and dwellings other than detached single-family dwellings.

These regulations shall apply to all applications for building permits made subsequent to the effective date of these regulations.

These regulations shall be effective 6 months after the adoption by the Commission of Housing and Community Development.

(c) Definitions. The following special definitions shall apply to this article as applicable:

(1) Impact Insulation Class (IIC)--A single number rating for ceiling-floor construction that represents the ability of the construction to isolate impact noise, where measurement procedure is based on ASTM E492-73T and as defined in UBC Standard No. 35-2.

(2) Sound Transmission Class (STC)--A single figure rating for floor-ceiling and interior wall partition construction that represents the ability of the construction to isolate airborne noise, where measurement procedure is based on ASTM E90-70 or ASTM E366-71 and as defined in UBC Standard No. 35-1.

(3) Detached Single-Family Dwelling--Any single-family dwelling which is separated from adjacent property lines by 3 feet or more or is separated from adjacent buildings by 6 feet or more.

(d) Sound Trasmission Control Between Dwelling Units. (1) Wall and Floor-Ceiling Assemblies. Wall and floor-ceiling assemblies separating dwelling units or guest rooms from each other and from public space such as interior corridors and service areas shall provide airborne sound insulation for walls, and both airborne and impact sound insulation for floor-ceiling assemblies.

(2) Airborne Sound Insulation. All such separating walls and floor-ceiling assemblies shall provide an airborne sound insulation equal to that required to meet a Sound Transmission Class (STC) of 50 (45 if field tested) as defined in UBC Standard No. 35-1.

Penetrations or openings in construction assemblies for

piping, electrical devices, recessed cabinets, bathtubs, soffits, or heating, ventilating ro exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings.

Dwelling unit entrance doors from interior corridors together with their perimeter seals shall have a Sound Transmission Class (STC) rating of not less than 30 and such perimeter seals shall be maintained in good operating condition.

(3) Impact Sound Insulation. All separating floor-ceiling assemblies between separate units or guest rooms shall provide Impact Insulation Class (IIC) of 50 (45 if field tested) as defined in the assembly to obtain the required rating, and must be retained as a permanent part of the assembly and may only be replaced by other floor covering that provides the same sound insulation required above.

(4) Tested Assemblies. Field or laboratory tested wall or floor-ceiling designs having an STC or IIC of 50 or more as determined by UBC Standard 35-1, 35-2 or 35-3 may be used without any additional field testing when in the opinion of the Building Officials the laboratory tested design has not been compromised by flanking paths. Tests may be required by the Building Official when evidence of compromised separations is noted.

(5) Field Testing. Field testing, when required, shall be done under the supervision of person experienced in the field of acoustical testing and engineering, who shall forward test results to the Building Official showing that the minimum sound insulation requirements stated above have been met.

(6) Airborne Sound Insulation Field Test. When required, airborne sound insulation shall be determined according to the applicable Field Airborne Sound Transmission Loss Test procedures of UBC Standard No. 35-3. All sound transmitted from the source room to the receiving room shall be considered to be transmitted through the test partition.

(7) Impact Sound Insulation Field Test. When required, impact sound insulation shall be determined in accordance with UBC Standard No. 35-2.

(e) Noise Insulation from Exterior Sources.

(1) Location and Orientation. Consistent with land use standards, residential structures located in noise critical areas, such as proximity to select system of county roads and city streets (as specified in 186.4 of the State of California Streets and Highways Code), railroads, rapid tansit lines, airports, no industrial areas shall be designed to prevent the intrusion of exterior noises beyond prescribed levels with all exterior doors and windows in the closed position. Proper design shall include,

but shall not be limited to, orientation of the residential structure, set-backs, shielding, and sound insulation of the building itself.

(2) Interior Noise Levels. Interior community noise equivalent levels (CNEL) with windows closed, attributable to exterior sources shall not exceed an annual CNEL of 45 dB in my habitable room.

(3) Airport Noise Source. Residential structures to be located within an annual CNEL contour (as defined in Title 4, Sub-chapter 6, California Administrative Code) of 60 require an acoustical analysis showing that the structure has been designed to limit intruding noise to the prescribed allowable levels. CNEL's shall be as determined by the local jurisdiction in accordance with its local general plan.

(4) Vehicular and Industrial Noise Sources. Residential buildings or structures to be located within annual exterior community noise equivalent level contours of 60 dB adjacent to the select system of county roads and city streets (as specified in Section 186.4 of the State of California Streets and Highways Code), freeways, state highways, railroads, rapid-transit lines and industrial noise sources shall require an acoustical analysis showing that the proposed building has been designed to limit intruding noise to the allowable interior noise levels prescribed in Section T25-1092 (e) (2).

Exception: Railroads, where there are no nighttime (10:00 p.m. to 7:00 a.m.) railway operations and where daytime (7:00 a.m. to 10:00 p.m.) railway operations do not exceed four (4) per day.

(f) Compliance. —

(1) Evidence of compliance shall consist of submittal of an acoustical analysis report, prepared under the supervision of a person experienced in the field of acoustical engineering, with the application for building permit. The report shall show topo graphical relationship of noise sources and dwelling site, identification of noise sources and their characteristics, predicted noise spectra at the exterior of the proposed dwelling structure considering present and future land usage, basis for the prediction (measured or obtained from published data), noise attenuation measures to be applied, and an analysis of the noise insulation effectiveness of the proposed construction showing that the prescribed interior noise level requirements are met. If interior allowable noise levels are met by requiring that windows be unopenable or closed, the design for the structure must also specify the means that will be employed to provide ventilation, and cooling if necessary, to provide a habitable interior environment.

(2) Field Testing. Only when inspection indicates that the construction is not in accordance with the approved design, field testing may be required. Interior noise measurements shall be taken under conditions of typical maximum exterior noise levels within legal limits. A test report showing compliance or noncompliance with prescribed interior allowable levels shall be submitted to the Building Official.

Where a complaint as to noncompliance with this article requires a field test to resolve the complaint, the complainant shall post a bond or adequate funds in escrow for the cost of said testing. Such costs shall be chargeable to the complainant when such field tests show that compliance with these regulations is in fact present. If such tests show noncompliance, then such testing costs shall be borne by the owner or builder.

Section 186.3 Expenditure of funds; select system of roads and streets report and map

(a) Funds apportioned pursuant to Section 2106 shall be expended exclusively for acquisition of rights-of-way for and construction of routes on the select system of county roads and city streets for such county or city established as provided in this section or for maintenance purposes thereon, or for highway-oriented transportation studies requested by a state or federal agency; provided, however, that any expenditure of funds apportioned pursuant to Section 2106 or 2107 for acquisition of right-of-way or construction upon a state highway, or upon a select system road or street in a county or city, including any select system road or street outside the boundaries of the county or city that complements the select system of the county or city, shall be deemed an expenditure upon the select system of the county or city making such expenditure.

(b) Each county and city, to be eligible for allocation and apportionment of funds pursuant to Section 2106 or 2107, shall file a report and map or maps with the department indicating its select system of county roads or city streets, and thereafter each eligible county and city may submit a supplemental report with map or maps recommending proposed additions or deletions to the system where such additions or deletions are warranted by changes brought about by annexations or changes in traffic or land-use patterns or by other causes. Such submittals shall be reviewed and approved or modified by the department and shall constitute the select system upon which funds may thereafter be expended.

(c) All select systems and their modifications or revisions heretofore approved by the commission shall be effective upon the date of such approval.

(d) Notwithstanding subdivision (a), funds received pursuant to Sections 2106 and 2107 and expended for the acquisition of rights-of-way for, and the construction of, city streets shall be considered expenditures on the select system of the city, if the city legislative body finds that 90 percent or more of either its select system or its entire system of city streets has been constructed. For purposes of this subdivision, the select system of city streets shall include all city streets which meet, or substantially meet, all three criteria set forth in subdivision (b) of Section 186.4. In the event that the total mileage of streets in the city has increased by more than 10 percent since the findings were made by the city legislative body, it shall reevaluate its findings.

(e) Notwithstanding subdivision (a), funds apportioned pursuant to Section 2106 may be expended or allocated for the purposes specified in subdivision (c) and (d) of Section 2101 by a county or city included within an area in which the voters thereof have approved a proposition pursuant to Section 4 of Article XXVI of the California Constitution.

Section 186.4 Criteria for selection or revision of select system of roads and streets

In selecting or revising the select system of county roads or city streets

in accordance with section 186.3, the county or city, and the department in making its review and modification, if any, shall give consideration to the following criteria:

(a) The total mileage of the select system for any county or city shall not exceed 50 percent of the sum of state highway and locally maintained road or street mileage in the county or city less the state highway mileage in the county or city: except that this limit may be exceeded in the case of unusual circumstances reported by the county or city and determined by the department to constitute sufficient cause for exceeding the limit.

(b) Any route included in the select system of county roads or city streets shall meet one or more of the following test:

(1) It shall provide an important traffic connection to a route in state highway system.

(2) It shall be an important traffic lateral between two or more routes in the state highway system.

(3) It shall afford substantial traffic relief to one or more routes in the state highway system.

Routes in the state highway system may be included in the select system for the purpose of providing for contributions to and processing of projects pursuant to cooperative agreements with the department. Any route so included shall, upon relinquishment as a state highway, remain in the select system.

Any route not qualifying, or only partially qualifying, under any one or more of the foregoing tests may be included in the select system for the county or city only upon a showing of cause by the county or city in its report and upon a determination by the department that sufficient cause exists for the inclusion of the route in the system.

(c) A showing shall be made by the county or city in its report that every route included in its select system is coordinated with route selections of contiguous local jurisdictions and with routes in the state highway system.

(d) Notwithstanding any other provisons of this section, each county shall be entitled to include within its select system as many miles of county road as were included in its approved system of primary roads pursuant to Chapter 1 (commencing with Section 2000) of Division 3 on January 1, 1963, and each city shall be entitled to include within its select system as many miles of city streets as were included in its approved system of major city streets pursuant to Chapter 2 (commencing with Section 2050) Division 3 on January 1, 1963.

(e) Notwithstanding any other provisions of this section, the general or master plan of county roads, as adopted and modified from time to time by the board of supervisors, may be designated by the board of supervisors as the select system of county roads for the county. The board of supervisors shall endeavor to coordinate the route in the general or master plan of county roads with route selections of contiguous local jurisdictions and with routes in the state highway system. If the board of supervisors makes the designation authorized by this subdivision, and any route in the general or master plan of county roads is not coordinated with the route selections

of a contiguous local jurisdiction, such contiguous local jurisdiction shall not be required, under subdivision (c), to make a showing of coordination of its select system routes with such route.

APPENDIX C
COMMUNITY NOISE
EQUIVALENT LEVEL
(CNEL)

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL)

The airport environment contours were developed on a Community Noise Equivalent Level (CNEL) weighting scale. CNEL is similar to the L_{dn} except that it adds an evening time period for additional weighting.

Defined in this manner:

$$CNEL = SENEL + 10 \log N_c - 49.4, \text{ dB}$$

where:

1. SENEL is the same as previously defined.

2. $N_c = (N_d + 3N_e + 10N_n)$

and N_d = total number of occurrences during the period from 7:00 a.m. to 7:00 p.m.

N_e = total number of occurrences during the period from 7:00 p.m. to 10:00 p.m.

N_n = total number of occurrences during the period from 10:00 p.m. to 7:00 a.m.

CNEL is also the time weighting [illegible] to the California Administrative Code Title 25 for evaluation [illegible] noise levels.

APPENDIX D
THE COUNCIL ON INTERGOVERNMENTAL RELATIONS AND THE GENERAL PLAN GUIDELINES

THE COUNCIL ON INTERGOVERNMENTAL RELATIONS

The Council is a State agency composed of respresentatives from cities, counties, school districts, special districts, regional organizations and State agencies. It is organized to promote cooperation and coordination between local, regional, State and Federal agencies. Within the State of California there are over 5,000 units of government. Each of these agencies has a particular function to perform in the State's system of governance.

The Council's statutory authority and responsibility is to advise, recommend and help institute the means whereby State and local government agencies are able to effectively and economically provide desired public services to the people of California.

As part of its on-going responsibility to provide assistance to local governments, the Council has developed guidelines to assist local agencies in developing general plans and the required plan elements. It should be stressed that the guidelines are advisory. The guidelines are intended to be flexible enough to meet varying local conditions. Innovation is encouraged in developing a local planning process. No single planning methodology will work in all cases.

In formulating the guidelines, the views of local planners, interested people and organizations were sought. This process will continue so that problems in the application of the guidelines to local situations will be brought to light, and necessary modifications may be made. It will also be necessary to revise the guidelines to reflect changes in the planning law affecting the general plan. If new mandatory elements are added by the Legislature, CIR is required to prepare and adopt guidelines for such elements within six months of the effective date of the legislation.

In adopting the guidelines the Council indicated that an informal review will be made in six months, and it is hoped that jurisdictions will comment on its strengths, weaknesses and general usefulness in the interim. In addition, we will be interested in reviewing examples of innovative planning approaches that may have applicability to other jurisdictions . . .

GENERAL PLAN GUIDELINES - THE NOISE ELEMENT

1. Authority

Government Code Section 65302 (g) requires a noise element of all city and county general plans, as follows:

> A noise element in quantitative, numerical terms, showing contours of present and projected noise levels associated with all existing and proposed major transportation elements. These include but are not limited to the following:
>
> 1) Highways and [illegible]
> 2) Ground rapid transit systems
> 3) Ground facilities associated with all airports operating under a permit from the State Department of [illegible]

These noise contours may be expressed in any standard acoustical scale which includes both the magnitude to noise and frequency of its occurrence. The recommended scale is sound level A, as measured with A-weighting network of a standard sound level meter, with corrections added for the time duration per event and the total number of events per 24-hour period.

Noise contours shall be shown in minimum increments of five decibels and shall be continued down to 65 dBA. For regions involving hospitals, rest homes, long-term medical or mental care, or outdoor recreational areas, the contours shall be continued down to 45 dBA.

Conclusions regarding appropriate site or route selection alternatives or noise impact upon compatible land uses shall be included in the general plan.

The state, local, or private agency responsible for the construction or maintenance of such transportation facilities shall provide to the local agency producing the general plan, a statement of the present and projected noise levels of the facility, and any information that was used in the development of such levels.

2. The Scope and Nature of the Noise Element

   A. A statement of general policy indicating the local jurisdiction's general intentions regarding noise and noise sources in the community.

   B. Desired maximum noise levels by land use categories.

   C. Standards and criteria for noise emissions from transportation facilities. (It should be noted that control of some noise sources has been pre-empted by State and Federal governments.)

   D. Standards and criteria for compatible noise levels for local "fixed-point" noise sources.

   E. Guide to implementation.

   F. Appendix describing methodology of preparation and sources of data.

3. Methodology

   A. Preliminary identification of problem noise areas.

   B. Collect data on existing and proposed transportation noise sources. Such transportation noise data is to be provided by the agency constructing and operating the facilities. Such data may be expressed in the acoustical scale recommended in Section 65302 (g),

or any professionally acceptable acoustical scale used consistently throughout the preparation of the noise element.

C. Collect data on general noise levels throughout the community related to types of use. In collecting data, the differences among kinds of noises should be recognized. The impact of noise on the individual varies with its frequency, pitch, duration and cyclic consistency; the presence of masking noises in the environment; and the sound's familiarity.

D. Review information from published sources regarding effects of noise on people's activities, health and well being.

E. Establish committees or other procedures for developing citizen input and awareness of problems, issues and opportunities.

F. Survey noise control regulations from other jurisdictions giving special attention to regulations from jurisdictions with characteristics similar to the local community.

G. Formulate general policy statements responsive to local issues and problems.

H. Prepare standards and criteria relating noise levels to types of use and environmental factors.

I. Set measurable goals for the reduction of noise problem areas.

4. Definition of Terms

Sound intensity: A measure of the loudness of sound.

Noise contour: A line on passing through points where the same sound intensity level prevails. Contours from bands of varying width emanating from a noise source.

Decibel: A unit for measuring the relative loudness of sounds detectable by the human ear.

5. Relationship of the Noise Element

A. To Other Elements:

The noise element is related most closely to the circulation, land use and housing elements, since it provides noise level standards related to the compatibility of land use, of which residential use will be a highly important component. Noise level standards thus can be the decisive factor in locating transportation facilities (or their design) in relation to existing or planned land use. Consideration should be given to the adverse effects of noise on activities taking place both in the out-of-doors and in structures no insulate against sound. The noise element is also closely related to the open

space element since noise can adversely affect the enjoyment of quiet pursuits in open space. Conversely, open space can be employed to buffer noise sources from sensitive uses through distance and extensive tree planting.

B. To Environmental Impact Questions:

Social: Excessive noise is socially disruptive, and may be physically and psychologically damaging.

Economic: Excessive noise adversely affects property values and levels of productivity. In the past the costs of excessive noise from transportation facilities have been passed on to those in the vicinity rather than being borne by the producer of the noise.

C. To Other Agencies:

The law requires state, local or private agencies responsible for the construction and maintenance of major transportation facilities, provide present and projected noise levels for their facilities. This includes (but is not limited to):

State Department of Transportation
Regional Transit Authorities
Local Public Works Departments
Rapid Transit Districts
Airport Ground Facilities
Private Air Carriers
Private Freight Carriers
Railroad Companies

6. Implementation

A. Noise ordinances and regulations. The zoning ordinance may be utilized since it can vary levels of permissible noise by zoning district-relating noise level to type of use and situation.

B. Maintain liaison with transportation agencies regarding reduction in noise from existing facilities and control of noise through design and location and new facilities.

C. Revise other elements of general plan as appropriate to give recognition to noise level-land use relationships and other relevant matters. Revise circulation element to divert through traffic from residential streets.

D. Revise building code to reduce noise transmission in or from building and provide for additional sound insulating in high noise areas.

E. Liaison with health departments in the preparation of standards and ordinances and for assistance in on-site measurements of noise level.

F. Construct sound barriers, particularly surrounding noise intolerant areas such as between residential areas and freeways.

APPENDIX E
CALIFORNIA VEHICLE
CODE

CALIFORNIA VEHICLE CODE

GENERAL

23130 Noise Limits:

(a) No person shall operate either a motor vehicle or combination of vehicles of a type subject to registration at any time or under any condition of grade, load, acceleration or deceleration in such a manner as to exceed the following noise limits for the category of motor vehicles within the speed limits specified in this section:

	speed limit of 35 mph or less	speed limit of more than 35 mph
1. Any motor vehicle with a manufacturer's gross vehicle weight rating of 6,000 pounds or more and any combination of vehicles towed by such a motor vehicle:		
(A) Before January 1, 1973	88 dBA	90 dBA
(B) On and after January 1, 1973	86 dBA	90 dBA
2. Any motorcycle other than a motor-driven cycle	82 dBA	86 dBA
3. Any other motor vehicle and any combination of vehicles towed by such motor vehicle	76 dBA	82 dBA

(b) The noise limits established by this section shall be based on a distance of 50 feet from the center of the lane of travel within the speed limit specified in this section. The Department of the California Highway Patrol may provide for measurement at distances closer than 50 feet from the center of the lane of travel. In such a case, the measuring devices shall be so calibrated as to provide for measurements equivalent to the noise limit established by this section measured at 50 feet.

(c) The department shall adopt regulations establishing the test procedures and instrumentation to be utilized. These procedures shall allow, to the extent feasible noise measurement and enforcement action to be accomplished in reasonably confined areas such as residential areas of urban cities.

(d) This section applies to the total noise from a vehicle or combination of vehicles and shall not be construed as limited or precluding the enforcement of any other provisions of this code relating to motor vehicle exhaust noise.

(e) For the purpose of this section, a motortruck, truck tractor or bus that is not equipped with an identification plate or marking bearing the manufacturer's name and manufacturer's gross vehcile weight rating shall be considered as having a manufacturer's gross vehicle weight rating of 6,000 pounds or more if the unladen weight is more than 5,000 pounds.

(f) No person shall have a cause of action relating to the provisions of this section against a manufacturer of a vehicle or a component part thereof on a theory based upon breach of expressed or implied warranty unless it is alleged and proved that such manufacturer did not comply with noise limit standards of the Vehicle Code applicable to manufacturers and in effect at the time such vehicle or component part was first sold for purposes other than resale.

23130.5 Vehicular noise limits; 35 mph or less speed zone

(a) Notwithstanding the provisions of subdivision (a) of Section 23130, the noise limits, within a speed zone of 35 miles per hour or less on level streets, or streets with a grade not exceeding plus or minus one percent, for the following categories of motor vehicles, or combination of vehicles, which are subject to registration shall be:

1. Any motor vehicle with a manufacturer's gross vehicle weight rating of 6,000 pounds or more and any combination of vehicles towed by such motor vehicle . . . 82 dBA

2. Any other motor vehicle and many combination of vehicles towed by such motor vehicle . . . 74 dBA

3. Any motorcycle other than a motor driven cycle . . . 77 dBA

No person shall operate such a motor vehicle or combination of vehicles in such a manner as to exceed the noise limits specified in this section.

The provisions of subdivision (c), (d), (e), and (f) of Section 23130 shall apply to this section.

(b) Measurements shall not be made within 200 feet of any intersection controlled by an official traffic control device, or within 200 feet of the beginning or end of any grade in excess of plus or minus one percent. Measurement shall be made when it is reasonable to assume that the vehicle flow is at a constant rate of speed, and measurement shall not be made under congested traffic conditions which require noticeable acceleration or deceleration.

(c) Test procedures and instrumentation to be utilized shall be in accordance with regulations of the Department of the California

Highway Patrol, except that measurement shall not be conducted within 200 feet of any intersection controlled by an official traffic control device, or within 200 feet of the beginning or end of a grade.

(d) The noise limits established by this section shall be based on a distance of 50 feet from the center of the lane of travel within the speed limit specified in this section. The Department of the California Highway Patrol may provide for measurement at distances closer than 50 feet from the center of the lane of travel. In such a case, the measuring devices shall be calibrated as to provide for measurements equivalent to the noise limit established by this section measured at 50 feet.

Vehicles equipped with at least two snowtread tires are exempt from this section.

27160 Motor vehicle noise limits

(a) No person shall sell or offer for sale a new motor vehicle, except on off-highway motor vehicle subject to identification as defined in Section 38012, which produces a maximum noise exceeding the following noise limit at a distance of 50 feet from the centerline of travel under test procedures established by the department.

(1) Any motorcycle manufactured before 1970	92 dBA
(2) Any motorcycle, other than a motor-driven cycle manufactured after 1969, and before 1973	88 dBA
(3) Any motorcycle, other than a motor-driven cycle, manufactured after 1972, and before 1975	86 dBA
(4) Any motorcycle, other than a motor-driven cycle, manufactured after 1974, and before 1978	80 dBA
(5) Any motorcycle, other than a motor-driven cycle, manufactured after 1977, and before 1988	75 dBA
(6) Any motorcycle, other than a motor-driven cycle manufactured after 1987	70 dBA
(7) Any snowmobile manufactured after 1972	82 dBA
(8) Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1967 and before 1973	88 dBA
(9) Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1972, and before 1975	86 dBA
(10) Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1974, and before 1978	83 dBA
(11) Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1977, and before 1988	80 dBA
(12) Any motor vehicle with a gross vehicle weight rating of 6,000 pounds or more manufactured after 1987	70 dBA
(13) Any other motor vehicle manufactured after 1967 and before 1973	86 dBA

(14)Any other motor vehicle manufactured after 1972 and before 1975	84 dBA
(15)Any other motor vehicle manufactured after 1974 and before 1975	80 dBA
(16)Any other motor vehicle manufactured after 1977 and before 1988	75 dBA
(17)Any other motor vehicle manufactured after 1987	70 dBA

(b) Test procedures for compliance with this section shall be established by the department, taking into consideration the test procedures of the Society of Automotive Engineers.

EQUIPMENT OF OFF HIGHWAY VEHICLES (NEW)

Section 38275. Mufflers required

(a) Every off-highway motor vehicle subject to identification shall at all times be equipped with an adequate muffler in constant operation and properly maintained so as to meet the requirements of Section 38280, and no muffler or exhaust system shall be equipped with a cutout, bypass, or similar device.

(b) The provisions of subdivision (a) shall not be applicable to vehicles being operated off the highways in an organized racing or competitive event upon a closed course and which is conducted under the auspices or a recognized sanctioning body or by permit issued by the local governmental authority having jurisdiction.

Section 38280. Identification or sale of vehicle exceeding noise limit prohibited

(a) The Department of Motor Vehicles shall not identify a new off-highway motor vehicle subject to identification, on a dealer's report of sale which produces a maximum noise exceeding the following noise limit at a distance of 50 feet from the centerline of travel under test procedures established by the Department of the California Highway Patrol:

(1) Any such vehicle manufactured on or after January 1, 1972, and before January 1, 1973	92 dBA
(2) Any such vehicle manufactured on or after January 1, 1973, and before January 1, 1975	88 dBA
(3) Any such vehicle manufactured on or after January 1, 1975	86 dBA

(b) The department may accept a dealer's certificate as proof of compliance with this section.

(c) Test procedures for compliance with this section shall be established by the Department of the California Highway Patrol, taking into consideration the test procedures of the Society of Automotive Engineers.

(d) No person shall sell or offer for sale a new off-highway motor vehicle subject to identification which produces a maximum noise exceeding the noise limits set forth in subdivision (a) for which noise emission standards or regulations have not been adopted by the Administrator of the Environmental Protection Agency pursuant to the Federal Noise Control Act of 1972 (P.L. 92-574).

(e) No person shall sell or offer for sale a new off-highway motor vehicle subject to identification which produces noise that exceeds or in any way violates the noise emission standards or regulations adopted for such a motor vehicle by the Administrator of the Environmental Protection Agency pursuant to the Federal Noise Control Act of 1972 (P.L. 92-574).

(f) As used in this section the term "identify" is equivalent to the term "licensing" as used in Section 6 (e) (2) of the Federal Noise Control Act of 1972.

APPENDIX F
HARBORS AND
NAVIGATION CODE

HARBORS AND NAVIGATION CODE

Section 654. Mufflers; necessity; exemptions

The exhaust of every internal combustion engine use on any motorboat shall be effectively muffled at all times to prevent any excessive or unusual noise and as may be necessary to comply with the provisions of Section 654.05.

The provisions of this section shall not apply to motorboats competing under a local public entity or United States Coast Guard permit in a regatta, in a boat race, while on trial runs, or while on official trials for speed records during the time and in the designated area authorized by the permit. In addition, this section shall not apply to motorboats preparing for a race or regatta if authorized by a permit issued by the local entity having jurisdiction over the area where the preparations will occur.

Section 654.05 Noise Levels

No person shall operate any motorboat in or upon the inland waters of this State in such a manner as to exceed the following noise levels:

(a) For engines manufactured before January 1, 1976, a noise level of 86 dBA measured at a distance of 50 feet from the motorboat.

(b) For engines manufactured on or after January 1, 1976, and before January 1, 1978, a noise level of 84 dBA measured at a distance of 50 feet from the motorboat.

(c) For engines manufactured on or after January 1, 1978, a noise level of 82 dBA measured at a distance of 50 feet from the motorboat.

(d) Testing procedures employed to determine such noise levels shall be in accordance with the exterior sound level measurement procedure for pleasure motorboats recommended by the Society of Automotive Engineers in its recommended practice designated SAEJ34. The department may, by regulation, amend such testing procedures when deemed necessary to adjust to advances in technology.

The provisions of this section shall not apply to motorboats competing under a local public entity or United States Coast Guard permit in a regatta, in a boat race, while on trial runs, or while on official trials for speed records during the time and in the designated area authorized by the permit. In addition, this section shall not apply to motorboats preparing for a race or regatta if authorized by a permit issued by the local entity having jurisdiction over the area where the preparations will occur.

Section 654.06 Sale or offer for sale at retail; noise levels

No person shall sell or offer for sale at retail an internal combustion engine for use on any motorboat which, when operated, exceeds the following noise levels:

(a) For engines manufactured on or after January 1, 1974, and before January 1, 1976, a noise level of 86 dBA measured at a distance of 50 feet from the motorboat.

(b) For engines manufactured on or after January 1, 1976, and before January 1, 1978, a noise level of 84 dBA measured at a distance of 50 feet from the motorboat.

(c) For engines manufactured on or after January 1, 1978, a noise level of 82 dBA measured at a distance of 50 feet from the motorboats.

APPENDIX G
FEDERAL NOISE STANDARDS FOR AIRCRAFT

FEDERAL NOISE STANDARDS FOR AIRCRAFT

Federal noise standards for aircraft are expressed as Effective Perceived Noise Level (EPNL), in units of EPHdB as follows:

1) For approach and sideline, 108 EPNdB for maximum weights of 600,000 lbs. or more, less 2 EPNdB per halving of the 600,000 pounds maximum weight down to 102 EPNdB for maximum weights of 75,000 pounds and under.

2) For takeoff, 108 EPNdB for maximum weights of 600,000 pounds or more, less 5 EPNdB per halving of 600,000 pounds maximum wight down to 93 EPNdB for maximum weights of 75,000 pounds and under.

(b) Tradeoff. The noise levels in paragraph (a) may be exceeded at one or two of the measuring points prescribed below, if-

1. The sum of the exceedance is not greater than 3 EPNdB;

2. No exceedance is greater than 2 EPNdB; and

3. The exceedances are completely offset by reduction at other required measuring points.

Noise measuring points. Compliance with the noise level standards must be shown--

1) For takeoff, at a point 3.5 nautical miles from the start of the takeoff roll on the extended centerline of the runway;

2) For approach, at a point 1 nautical mile from the threshold on the extended centerline of the runway; and

3) For the sideline, at the point, on a line parallel to and 0.25 nautical miles from the extended centerline of the runway, where the noise level after liftoff is greatest, except that, for airplanes powered by more than three turbojet engines, this distance must be 0.35 nautical miles.

APPENDIX H
METHODOLOGIES FOR PROJECTING NOISE LEVELS FROM RAIL AND ROAD TRAFFIC

METHODOLOGIES FOR PROJECTING NOISE LEVELS FROM RAIL AND ROAD TRAFFIC

The procedures described in this Appendix are methodologies for estimating future noise levels which result from changes in road and rail transportation systems. These methods are intended for use primarily in environmental impact assessment where field measurements of potential future noise levels are not possible. It should be noted that these methods produce computed estimates of noise levels which are not as accurate as field measurements. It should also be noted that the procedures described below are simplifications of more complex methodologies which take into account the effects of barriers, road and bed grades, the number of lanes on a highway, and other noise modifiers. The procedures presented here are sufficient to determine noise levels accurately enough for the purposes of contouring. Those desiring more detailed analytical models are referred to Highway Noise, A Design Guide for Highway Engineers Report 117 by the Highway Research Board (1971) and Assessment of Noise Environments Around Railroad Operations Wyle Laboratories Report WCR 73-5 (1973) from which the following methodologies were summarized.

1. Road Traffic Noise L_{50} and L_{10} Noise Levels

A. Required Input Data

1. Road segment identification
2. Average Daily Traffic (ADT) volumes
3. Peak hour traffic volume
4. Truck-car mix percentages of total volume
5. Average speed

Road segments (a. above) are defined for the purpose of this methodology as stretches of road where (1) the peak hour volume, (2) the average speed, and (3) truck-car mix percentages are the same. The point at which at vary one of these variables changes defines the start of a new road segment. Road segments should be identified by both road names and milepost marker I.D.

If peak hour traffic volume statistics are not available, a representative figure is usually 10% of the ADT.

B. Determination of L_{50} Noise Level

1. From the truck-car mix statistics, determine the peak hour auto volume and the peak hour truck volume.

2. Select the appropriate speed curve in either Figure H-1 (for auto traffic) or Figure H-2 (for truck traffic) and read the L_{50} sound level at the ordinate axis.

3. Add the L_{50} sound levels for truck and auto traffic using decibel addition according to Table H-1 to determine the composite L_{50} at 100 feet from the center line of the nearest lane. The L_{50} noise level is that level exceeded 50 percent of the time.

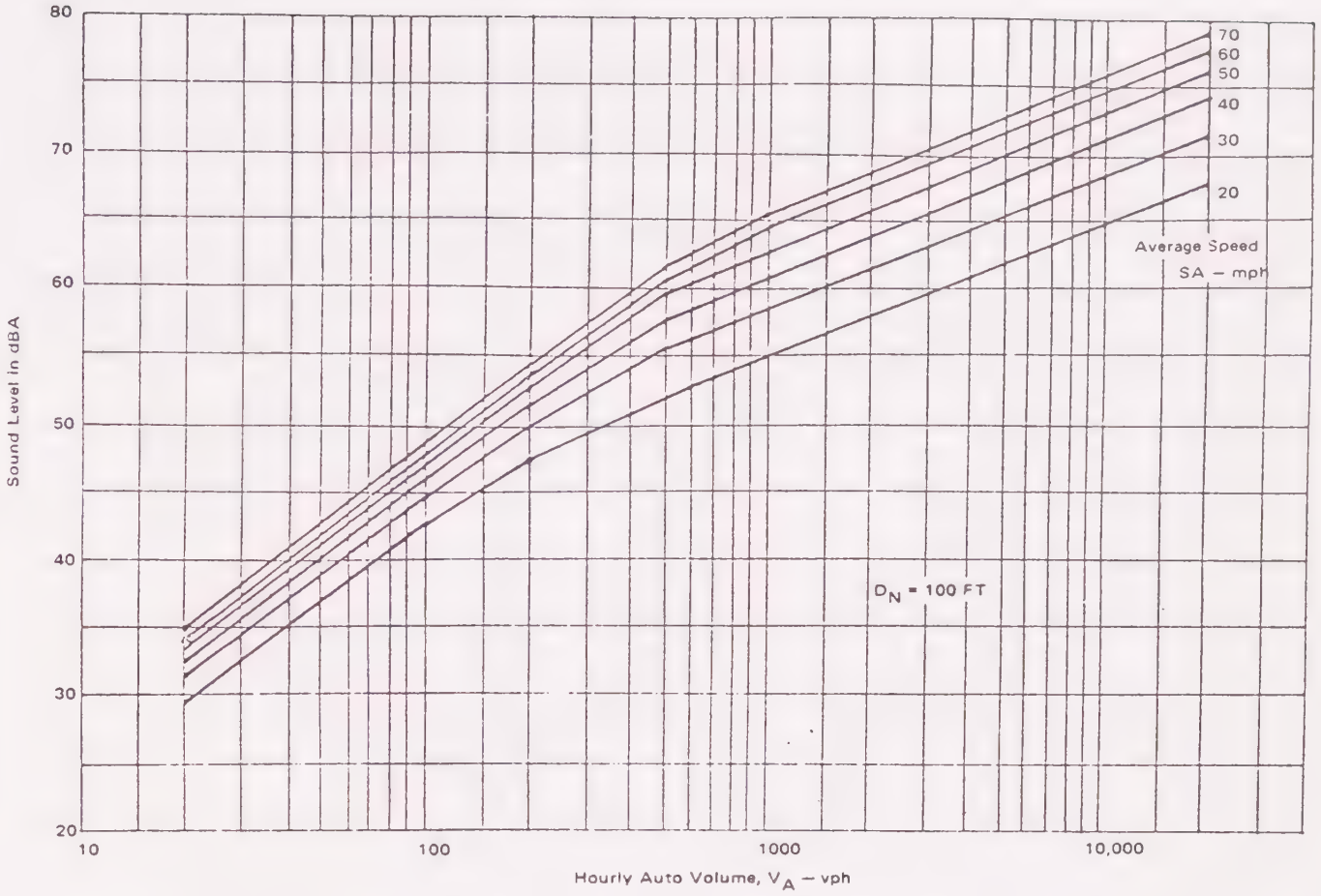


Figure H-1 Plot of L_{50} for automobiles as a function of volume flow and average speed. (Source: Highway Research Board, 1971).

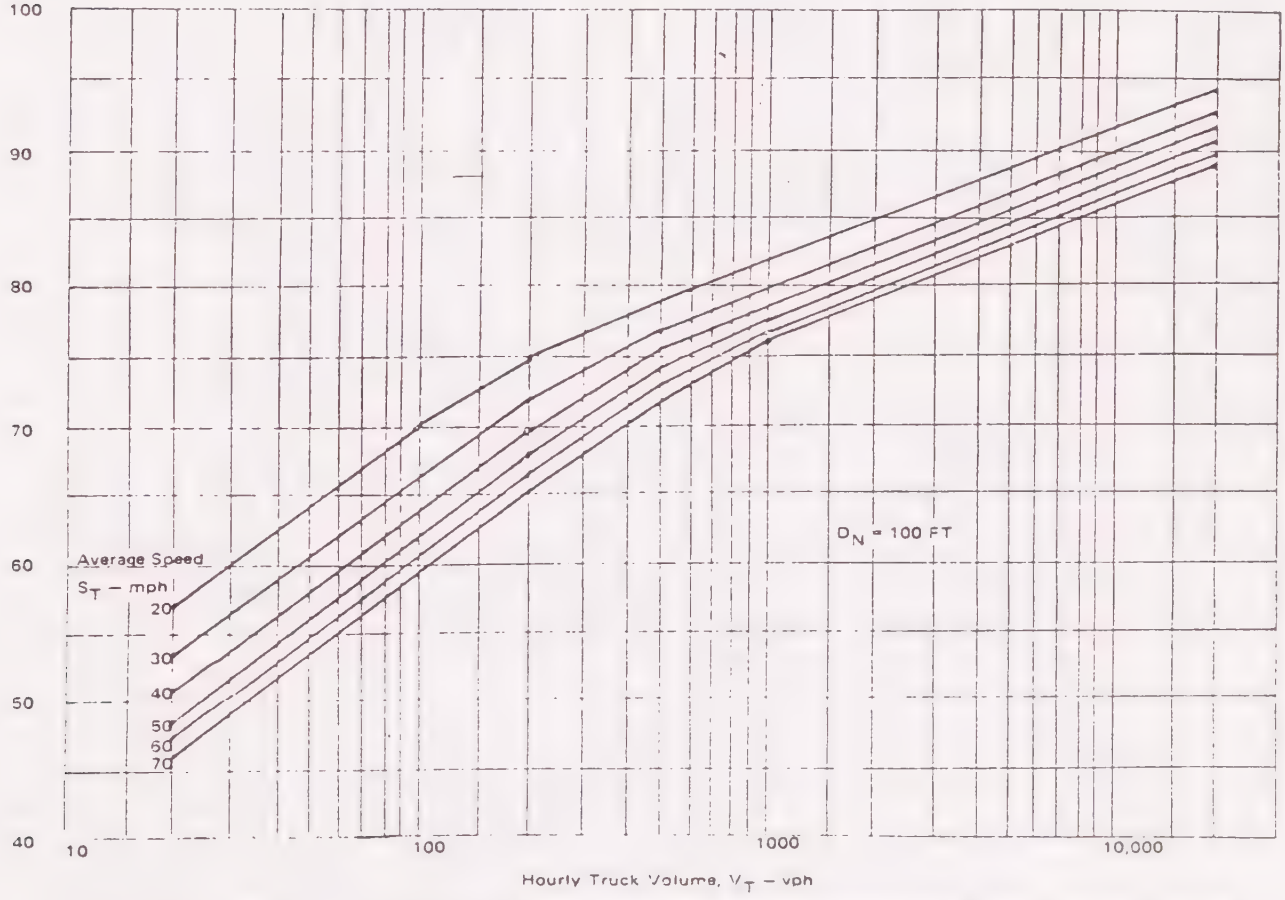


Figure H-2 Plot of L_{50} for trucks as a function of volume flow and average speed. (Source: Highway Research Board, 1971).

TABLE H-1

RULES FOR COMBINING SOUND LEVELS BY "DECIBEL ADDITION"

A. For noise levels known or desired to an accuracy of ±1 decibel:

When two decibel values differ by	Add the following amount to the higher value
0 or 1 dB	3 dB
2 or 3 dB	2 dB
4 or 9 dB	1 dB
10 dB or more	0 dB

B. For noise levels known or desired to an accuracy of ±½ decibel:

When two decibel values differ by	Add the following amount to the higher value
0 or ½ dB	3 dB
1 or 1½ dB	2½ dB
2 to 3 dB	2 dB
3½ to 4½ dB	1½ dB
5 to 7 dB	1 dB
7½ to 12 dB	½ dB
13 dB or more	0 dB

(Source: Bolt, Beranek and Newman, 1973).

C. Determination of L_{10} Noise Level from L_{50} Noise Level

The L_{10} noise level (i.e. that level exceeded 10% of the time)

1. Calculate Parameter "A" where:

   Parameter "A" = VD_E/S
   where
   V = Vehicle volume, (vehicles per hour, vph)
   D_E = Observer - Equivalent Lane Distance, feet.
   S = Average Speed, (miles per hour, mph)

   The Observer - Equivalent Lane Distance approximates the geometric mean of the distances from the observation point to the nearest (D_N) and farthest (D_F) lane center lines:

   $D_E - D_N D_F$

2. Plot Parameter "A" on the curve in Figure H-3, and read the L_{10}-L_{50} adjustment on the ordinate axis.

3. Add the L_{10}-L_{50} adjustment to the L_{50} noise level obtained in Part B to obtain the L_{10} noise level.

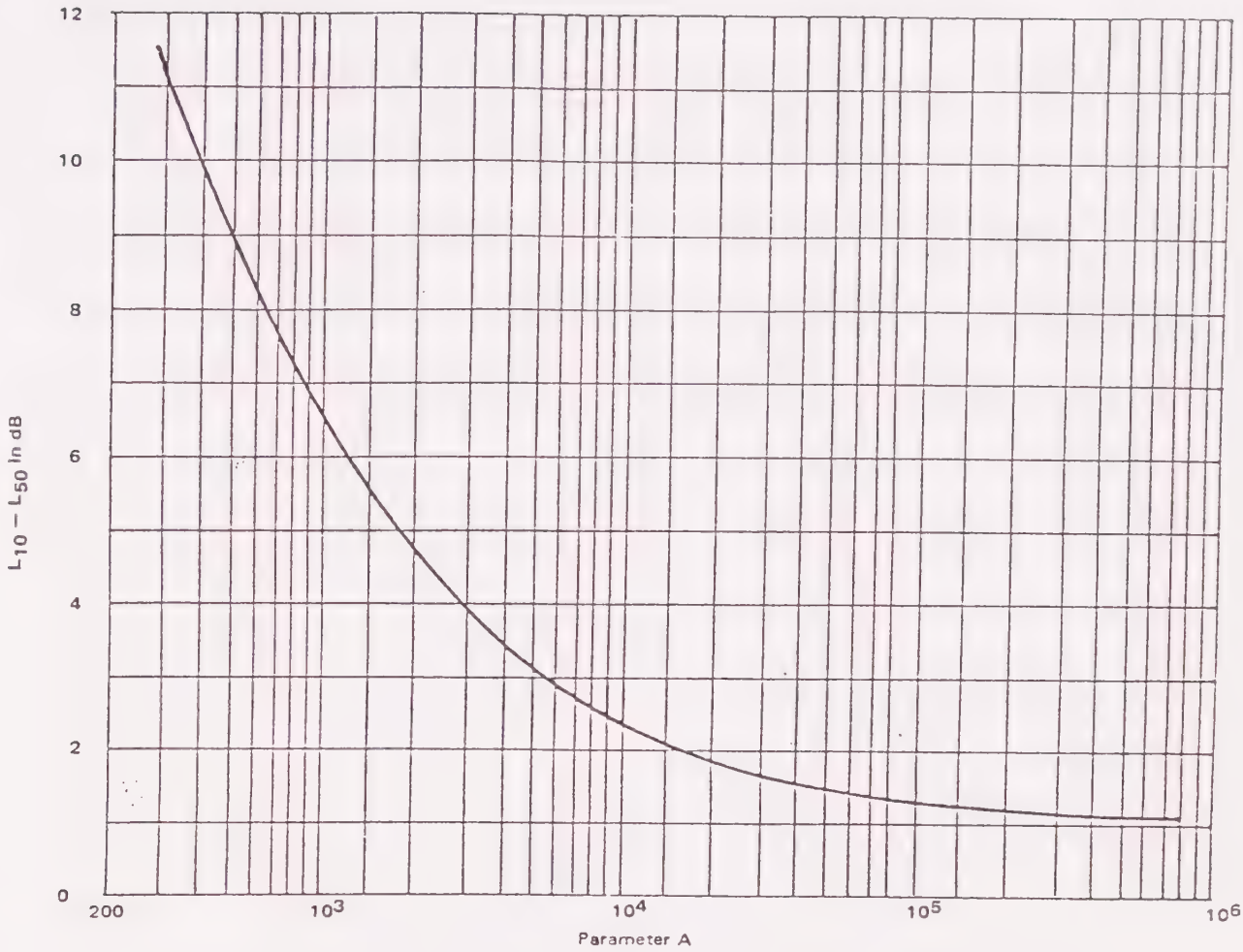


Figure H-3 Adjustment to L_{10} to obtain L_{10} (Source: Highway Research Board, 1971).

II. Rail Traffic Noise, Day-Night Average Sound Level

A. Required Input Data

1. Rail line segment identification
2. Number of operations per day on each line segment
3. The time of day of each operation

For the purposes of this model, an "operation" is defined as one diesel-electric locomotive pulling a train 2000 feet long at a speed of 30 mph on a straight mainline track on level terrain. This operation is assumed to be an average for line operations. For those cases in which this assumption does not hold, the more detailed analysis referred to in Wyle Laboratories Report WCR 73-5 should be used.

B. Determination of Day-Night Average Sound Level (L_{dn})

1. Calculate the equivalent number of operations according to the following equation:

$$N = N_D + 10N_N$$

where:

Day= 7:00 a.m. - 10:00 p.m.
Night= 10:00 p.m. - 7:00 a.m.

2. Refer to Figure H-4 using the following procedures:

   a. Select a distance from the center line of the track on the abscissa axis and enter the graph at that point.

   b. Read down to intersect the line corresponding to the known "N" value. Interpolation may be necessary.

   c. Read horizontally to the right to determine the L_{dn}.

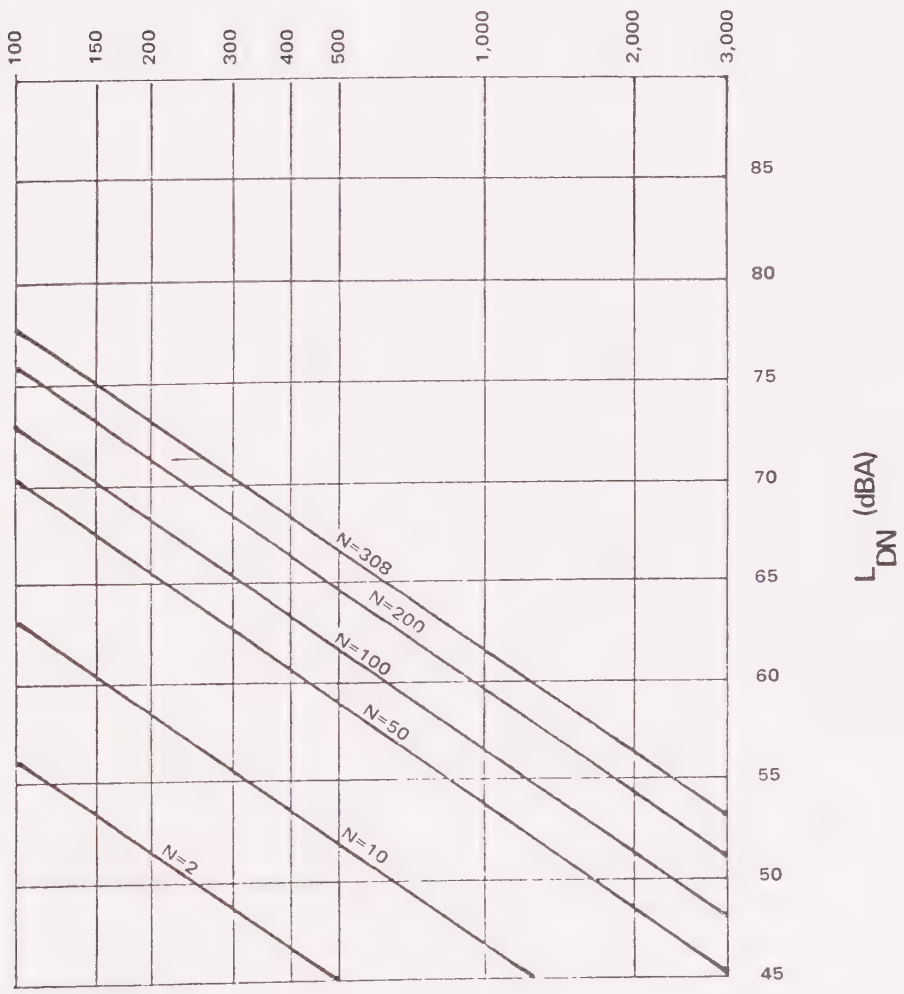
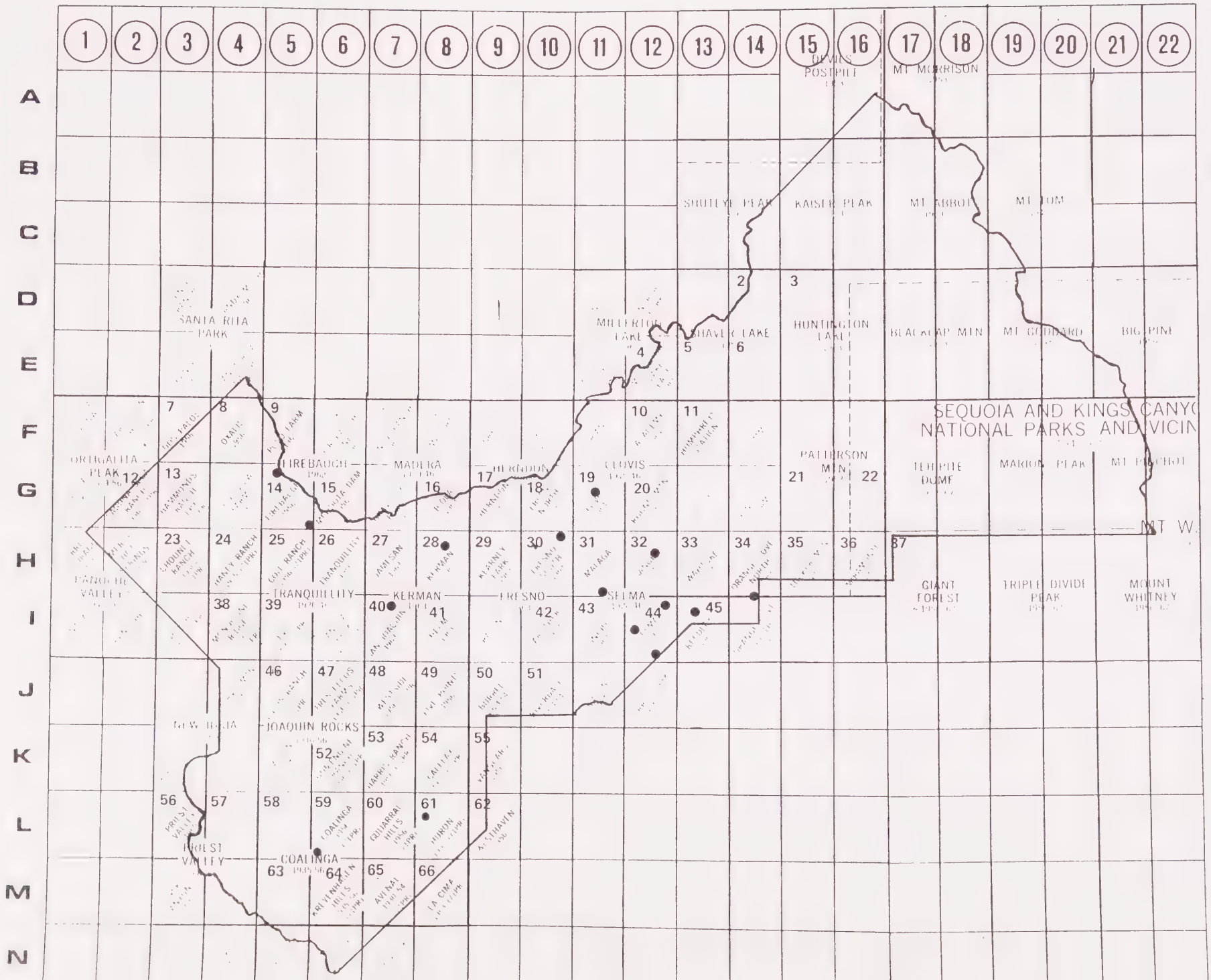


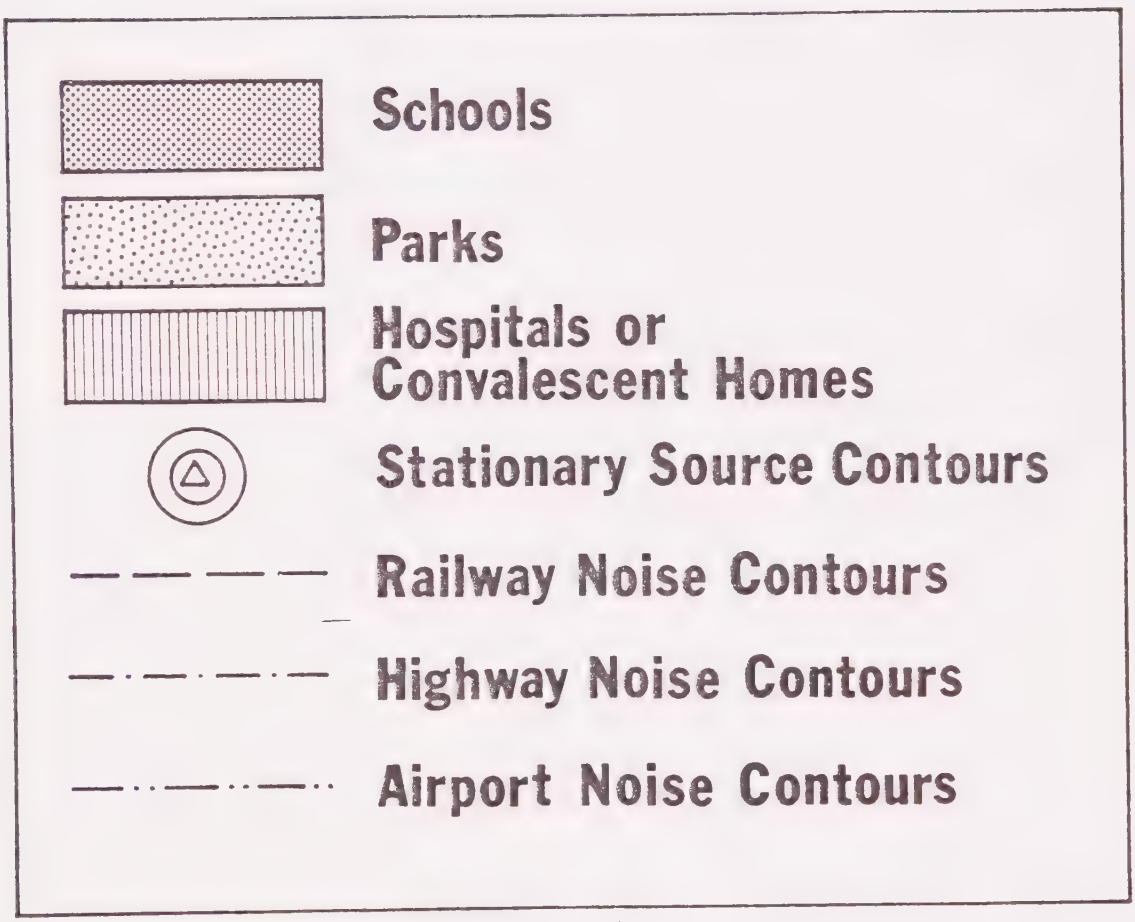
Figure H-4 Equivalent number of operations to Day-Night Average Sound Level adjustment by distance from track center line (Source: Los Angeles County Road Department, 1974).

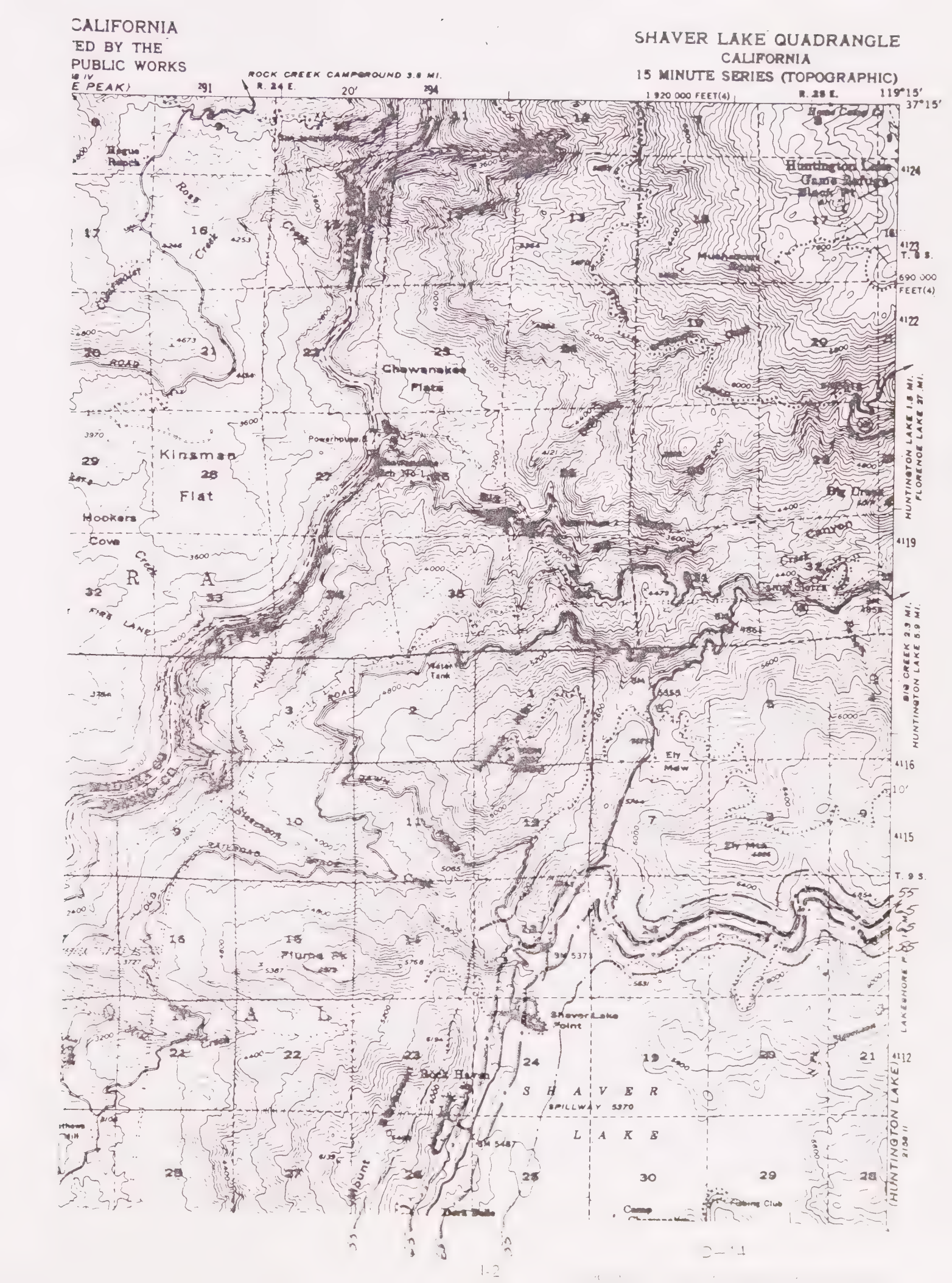


INDEX MAP

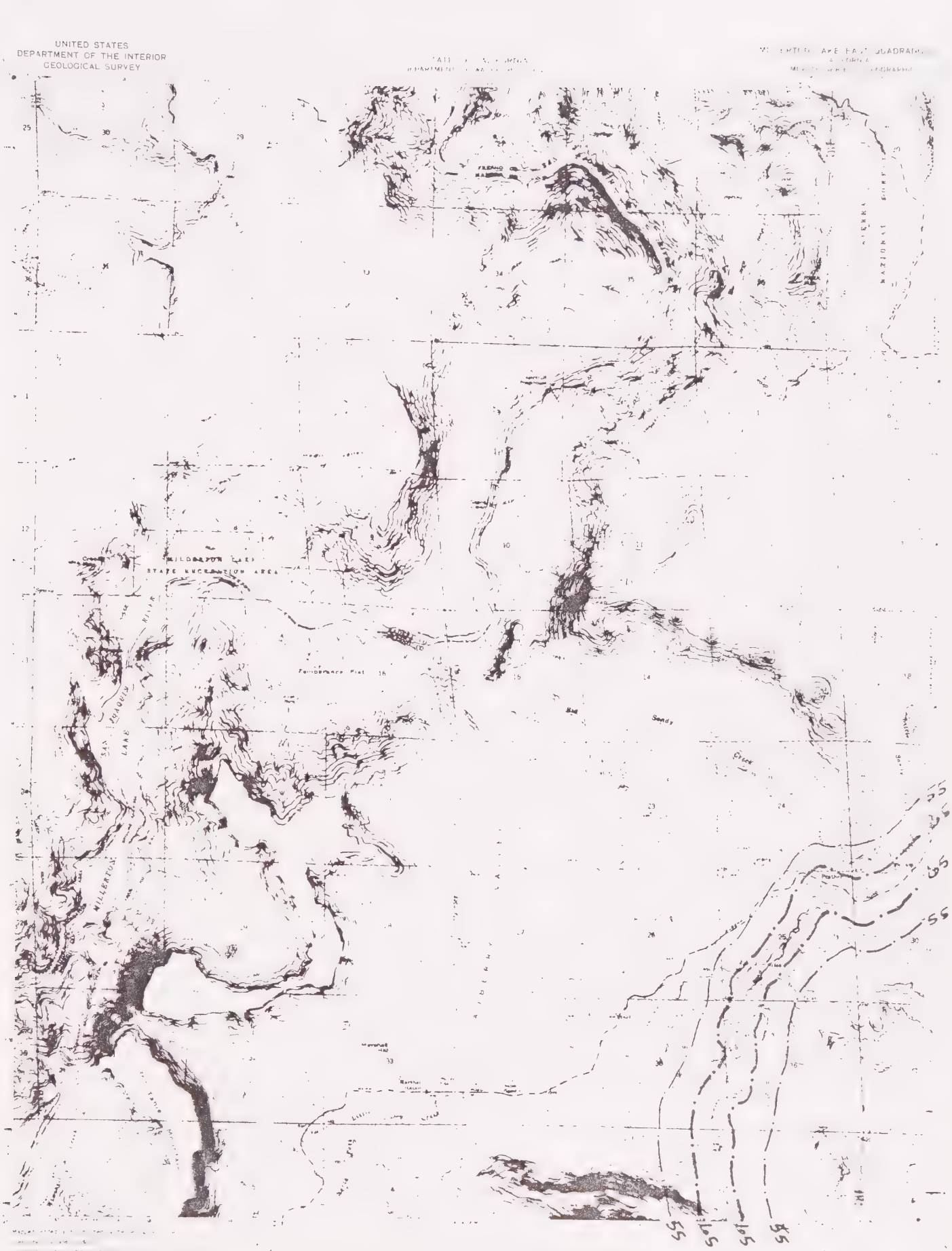
Figure I-1

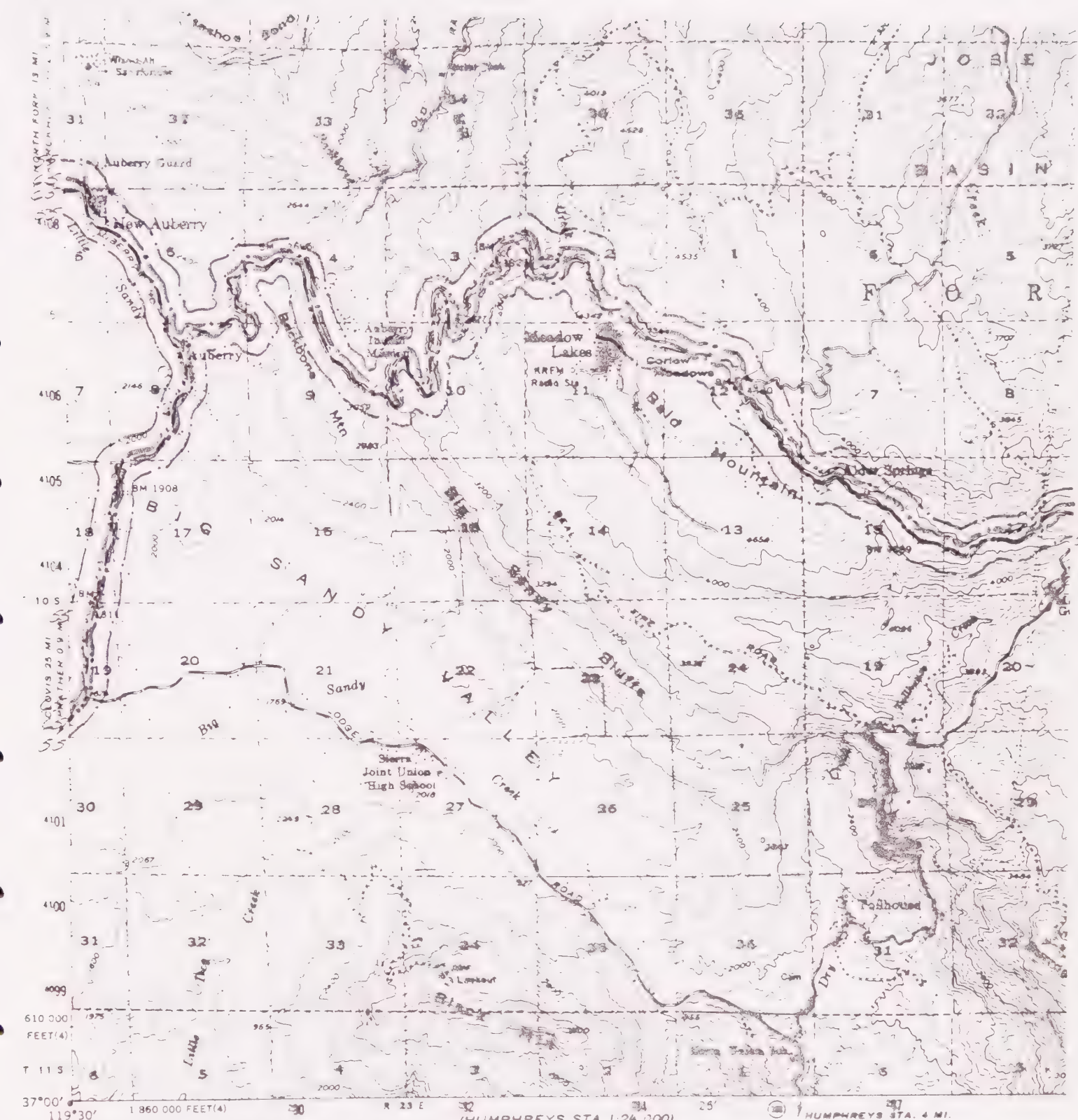
LEGEND


Schools
Parks
Hospitals or
Convalescent Homes
Stationary Source Contours
Railway Noise Contours
Highway Noise Contours
Airport Noise Contours


CALIFORNIA
ED BY THE
PUBLIC WORKS
SHAVER LAKE QUADRANGLE
CALIFORNIA
15 MINUTE SERIES (TOPOGRAPHIC)
ROCK CREEK CAMPGROUND 3.8 MI.
R. 24 E.
R. 25 E.
119°15'
37°15'
1 920 000 FEET(4)
690 000 FEET(4)
T. 8 S.
T. 9 S.
Chawanakee Flats
Kinsman Flat
Hookers Cove
Huntington Lake Game Refuge
Black Pt.
Big Creek
Camp Sierra
Ely Mdw.
Plume Pk.
Shaver Lake Point
Rock Haven
SHAVER LAKE
SPILLWAY 5370
Dam
Camp
Fishing Club
HUNTINGTON LAKE 1.8 MI.
FLORENCE LAKE 27 MI.
BIG CREEK 2.9 MI.
HUNTINGTON LAKE 5.9 MI.
LAKESHORE
(HUNTINGTON LAKE)


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CAI
DEPARTMENT OF WAT
Huntington Lake
HUNTINGTON LAKE
GAME REFUGE
Kaiser Pass
Bear Butte
Chinese Peak
Keaphalt Dome
Bonevard Meadow
Tamarack
Tamarack Meadow
Cutts Meadow
Creek 4
Fork
Ridge
Cedar Creek
Camp Edison
Sunset Point
West Lake
Brewer Lake
Big Creek
Big Creek Canyon
Tamarack Mtn
Shakeway
Bolcam
Shaver Lake
Fresno 59 mi
Shaver Lake 8.6 mi
Shaver Lake 7.5 mi
(Shaver Lake)
S I E R R A N A T I
T 8 S
T 9 S


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Millerton Lake
State Recreation Area
Friant Dam
Pumping Plant 1A
Sandy
Creek
Millerton
Lake
Temperance Flat
Reservoir
Sierra
National
Forest
55
55
55
55
55



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Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1948. Field check 1953

Polyconic projection. 1927 North American datum
10,000-foot grids based on California coordinate system, zone 3 and 4

Dashed land lines indicate approximate locations

Unchecked elevations are shown in brown

1000-meter Universal Transverse Mercator grid ticks, zone 11, shown in blue

UTM GRID AND 1953 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:6250

CONTOUR INTERVAL

DATUM IS MEAN SEA

E–13

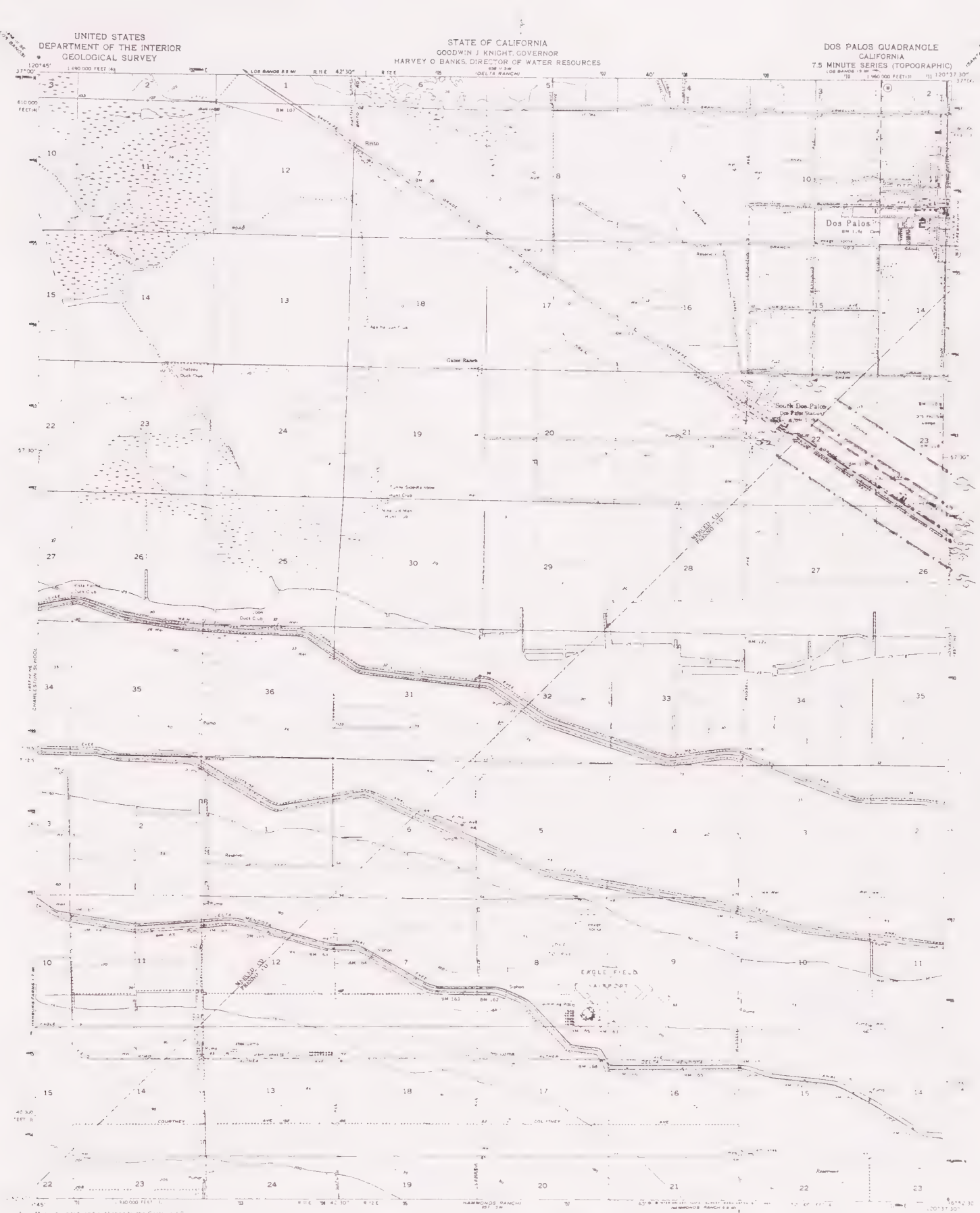
Prepared by Council of Fresno County Governments

THIS MAP COMPLIES WITH NATIONAL MA

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COL

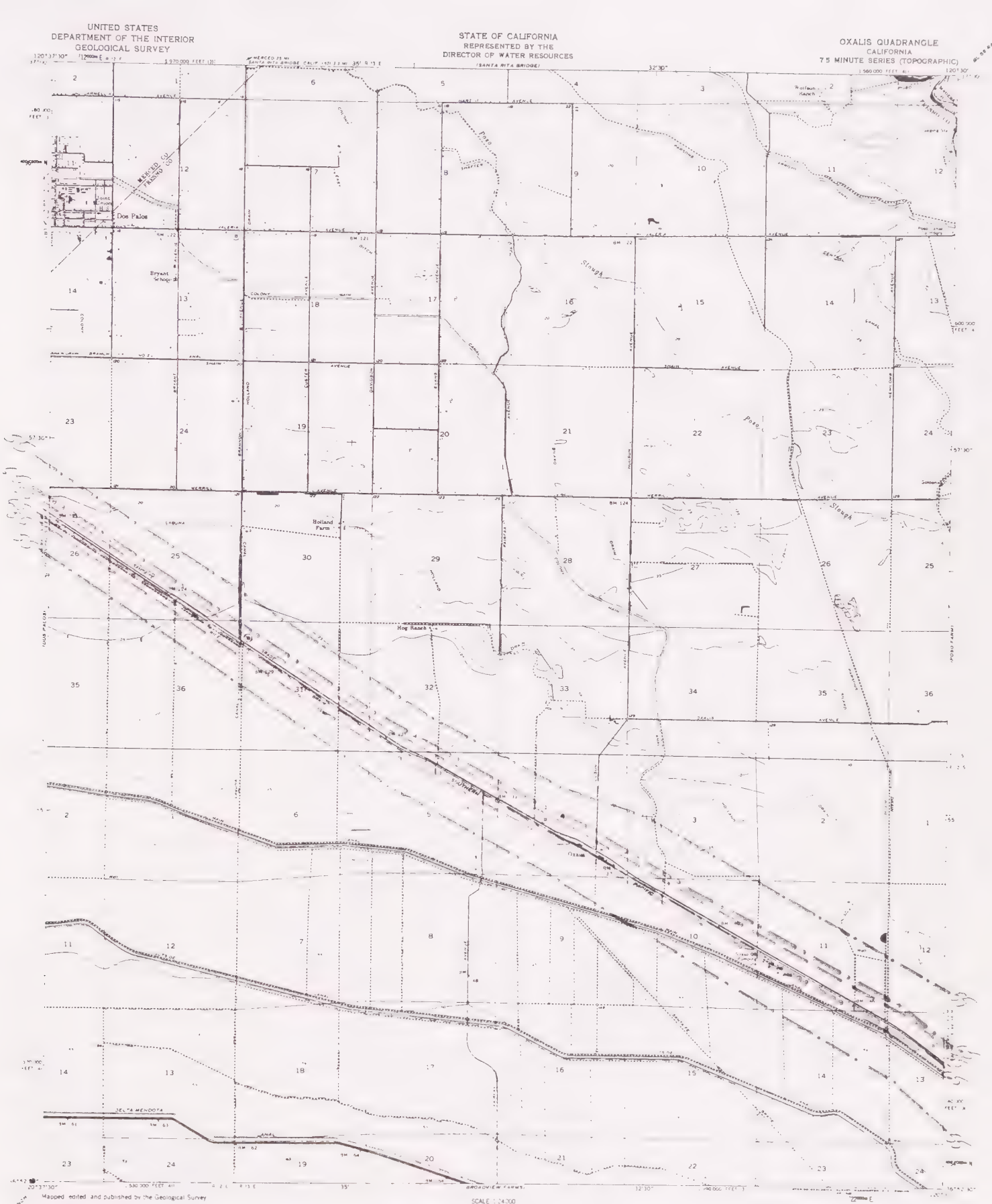
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND


Camp Chawanakee
Fishing Club
Shaver Lake
Shaver Lake P.O.
Ranger Sta
Creek
Old Bretz Mill
Pine Ridge
Mountain Rest Guard Sta
Dinkey Creek
Blue Canyon
Creek
Boulder Creek
Boulder Creek Campground
Bear Creek
Vincent
R E S T
P I N E
R 24 E
R 25 E.
T. 10 S
T. 11 S
(TRIMMER 1:24 000)
2157 IV NE
INTERIOR-GEOLOGICAL SURVEY, WASH., D.C.—1973
ROAD CLASSIFICATION
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt
U.S. Route
State Route
E—14
SHAVER LAKE, CALIF.
N3700—W11915/15
1953
AMS 2158 III—SERIES V795
1-6



F-3

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Culture and drainage compiled from aerial photographs taken 1950. Topography by plane-table surveys 1956

Polyconic projection. 1927 North American datum

10,000-foot grids based on California coordinate system zones 3 and 4

1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue

South half of this map lies within a subsidence area

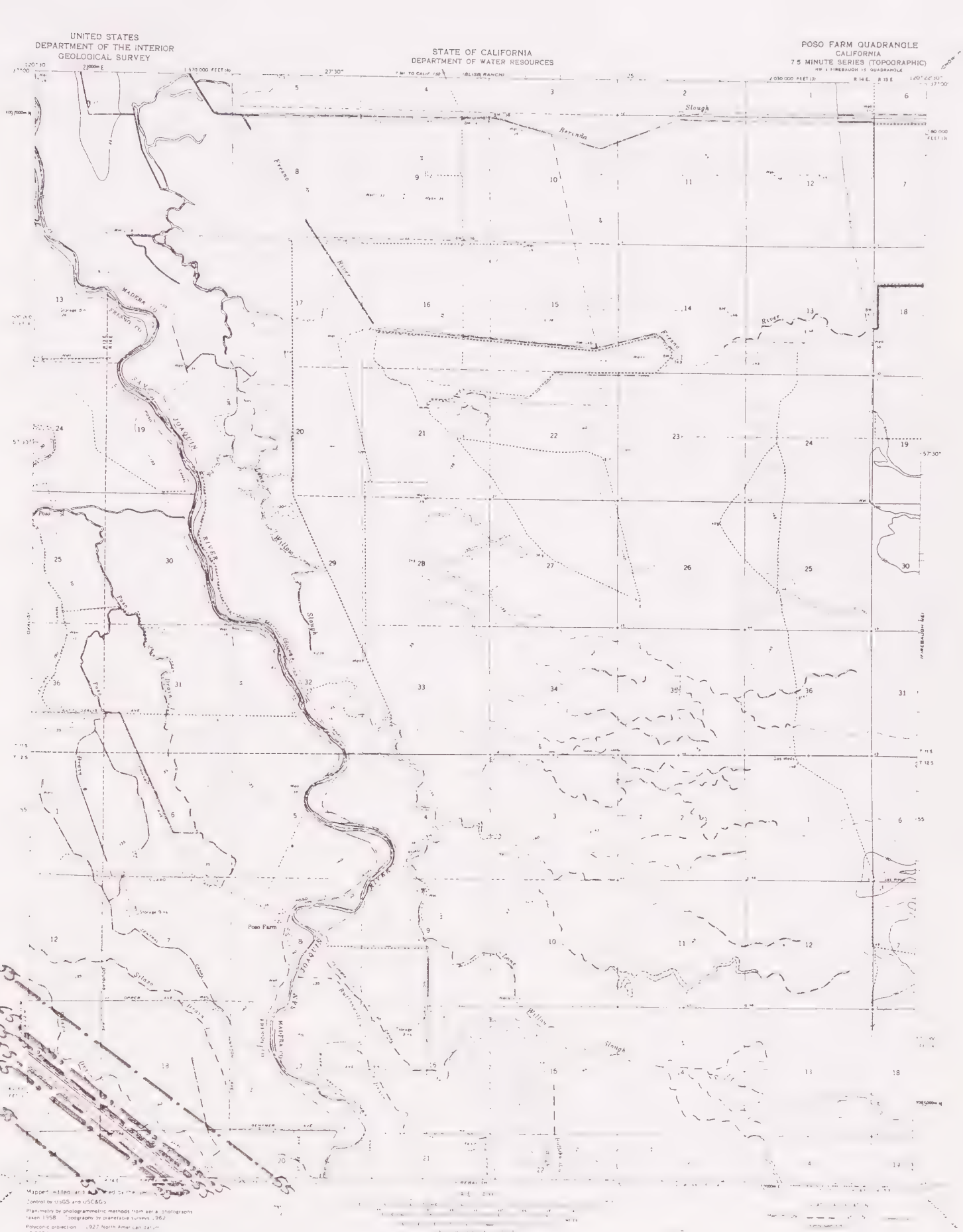
APPROXIMATE MEAN DECLINATION 1956

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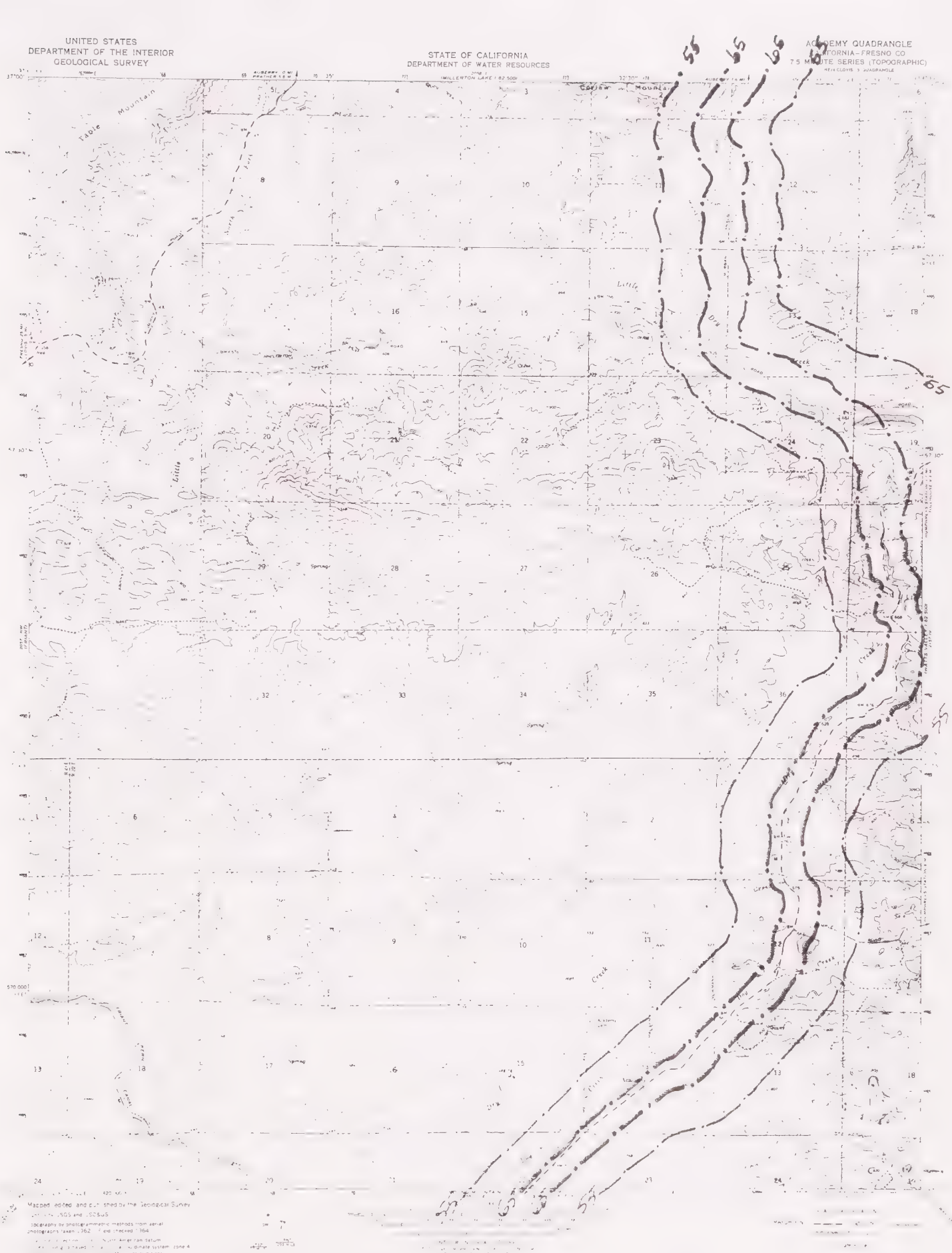
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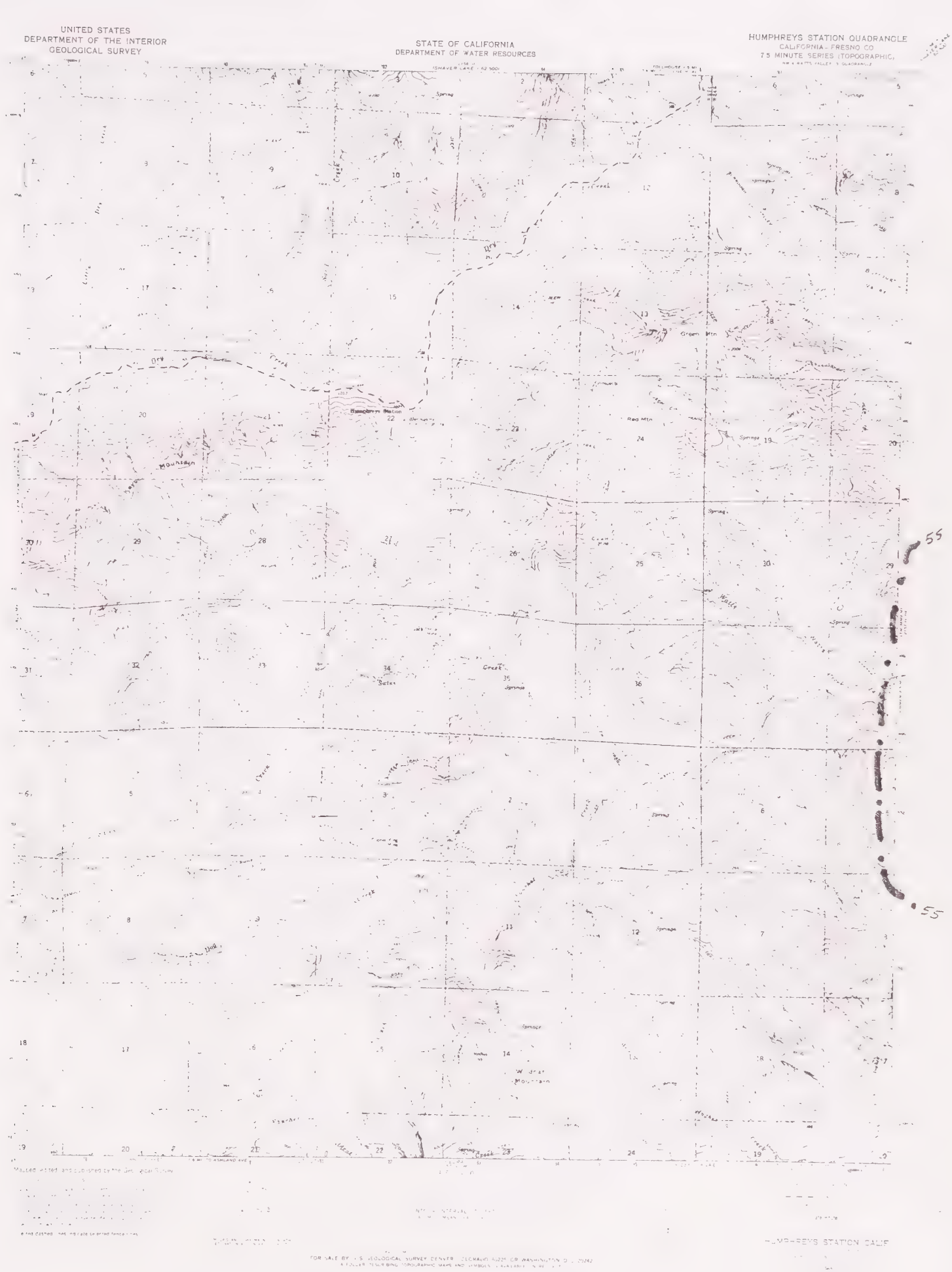
Council of Fresno County Governments

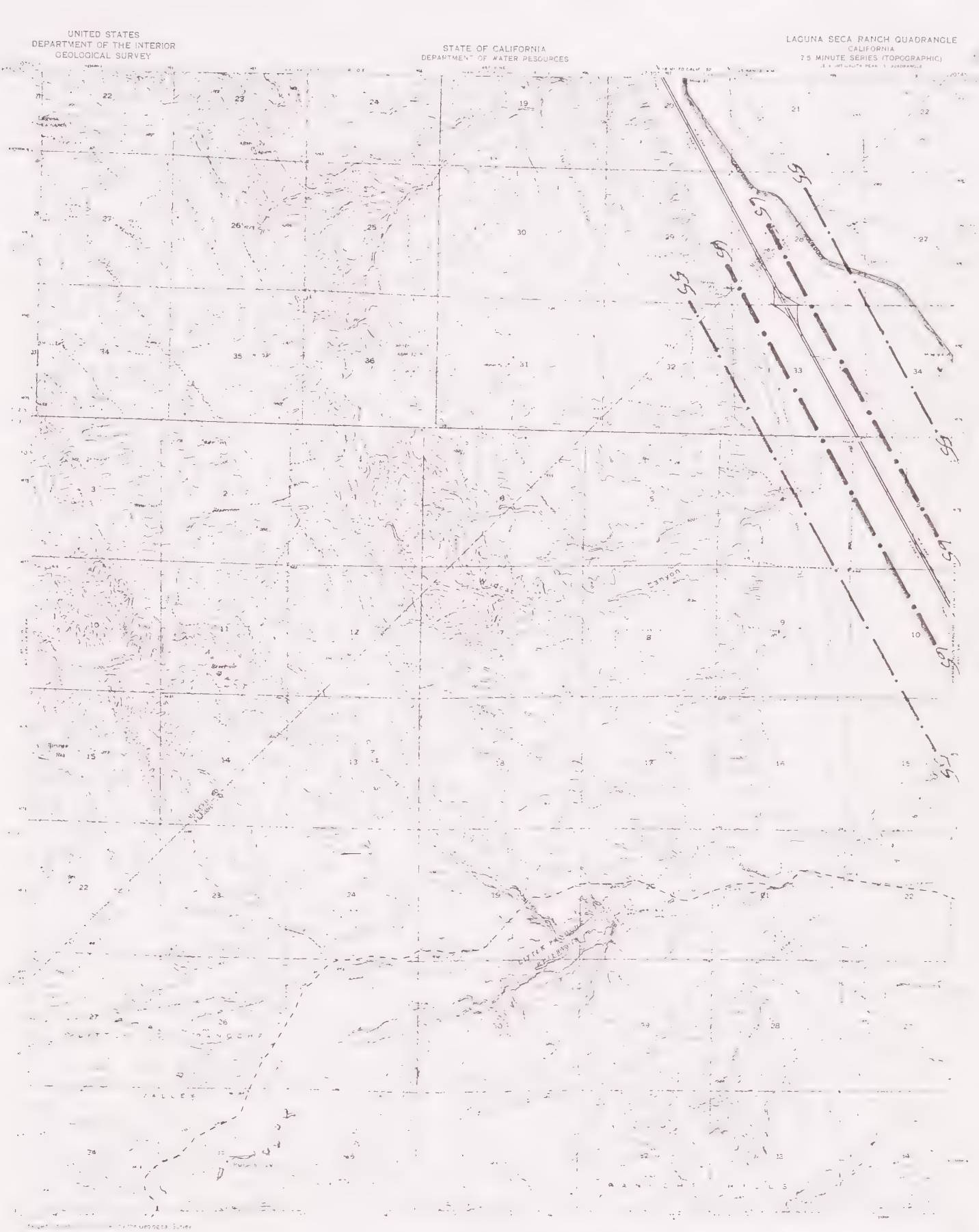

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
POSO FARM QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
Slough
Berenda
Fresno
River
Willow
Slough
Poso Farm
Lake
Slough

F–5

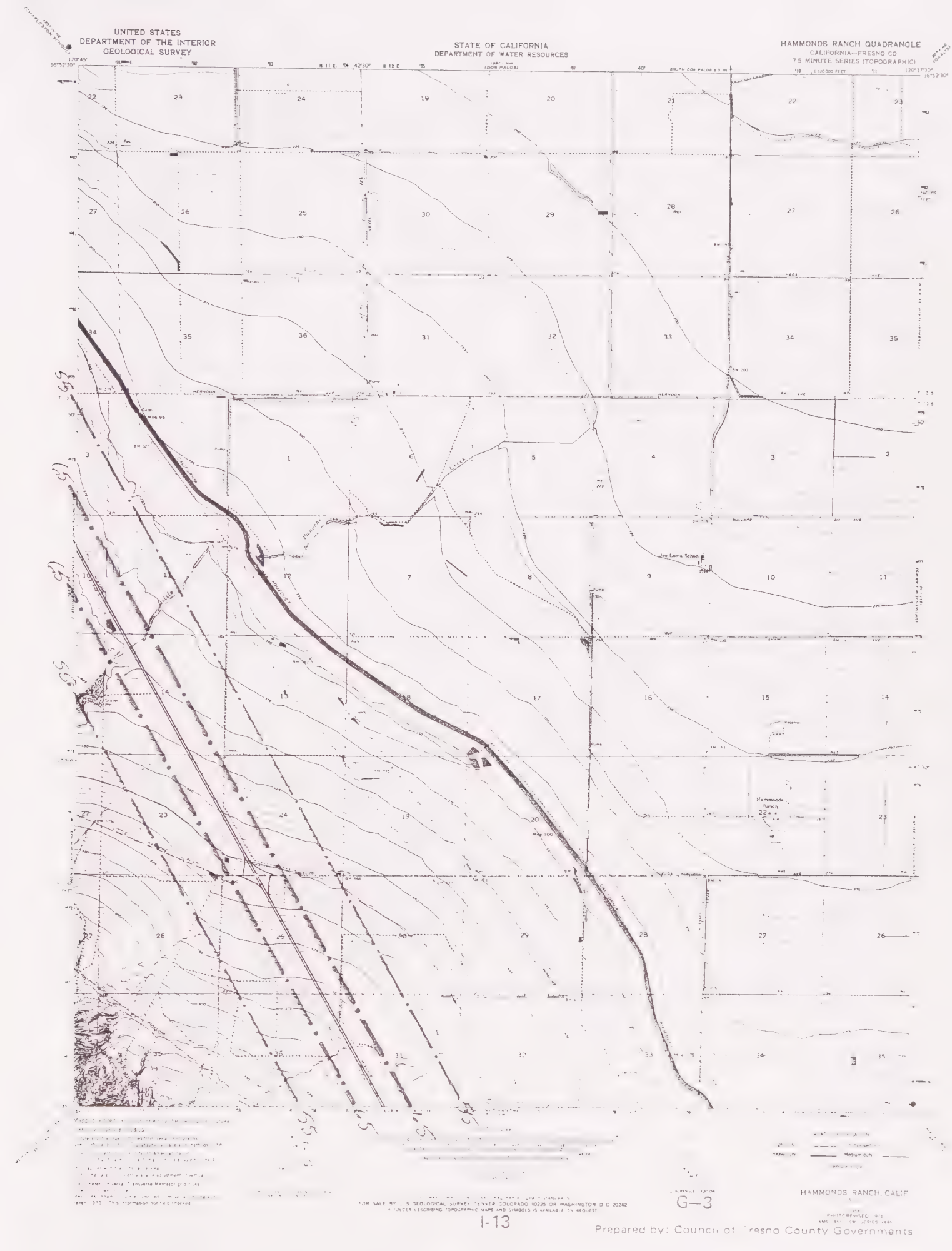

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GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
ACADEMY QUADRANGLE
CALIFORNIA—FRESNO CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
Table Mountain
Little Dry Creek
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ACADEMY, CALIF.

F-12

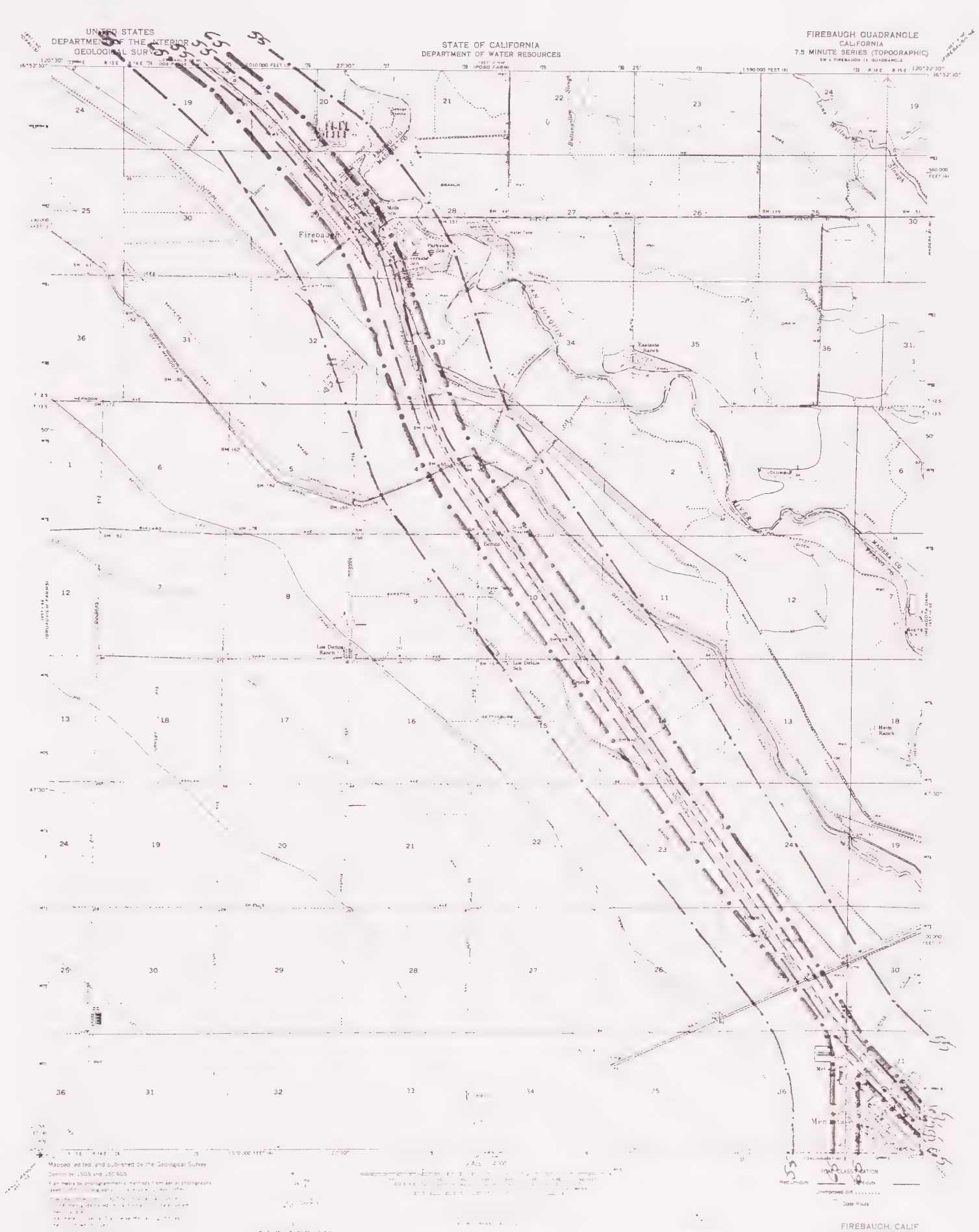

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GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
HUMPHREYS STATION QUADRANGLE
CALIFORNIA-FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
Green Mtn
Red Mtn
Basecamp Station
Mountain
Creek
Spring
Springs
Wells
Dike
Sales
55

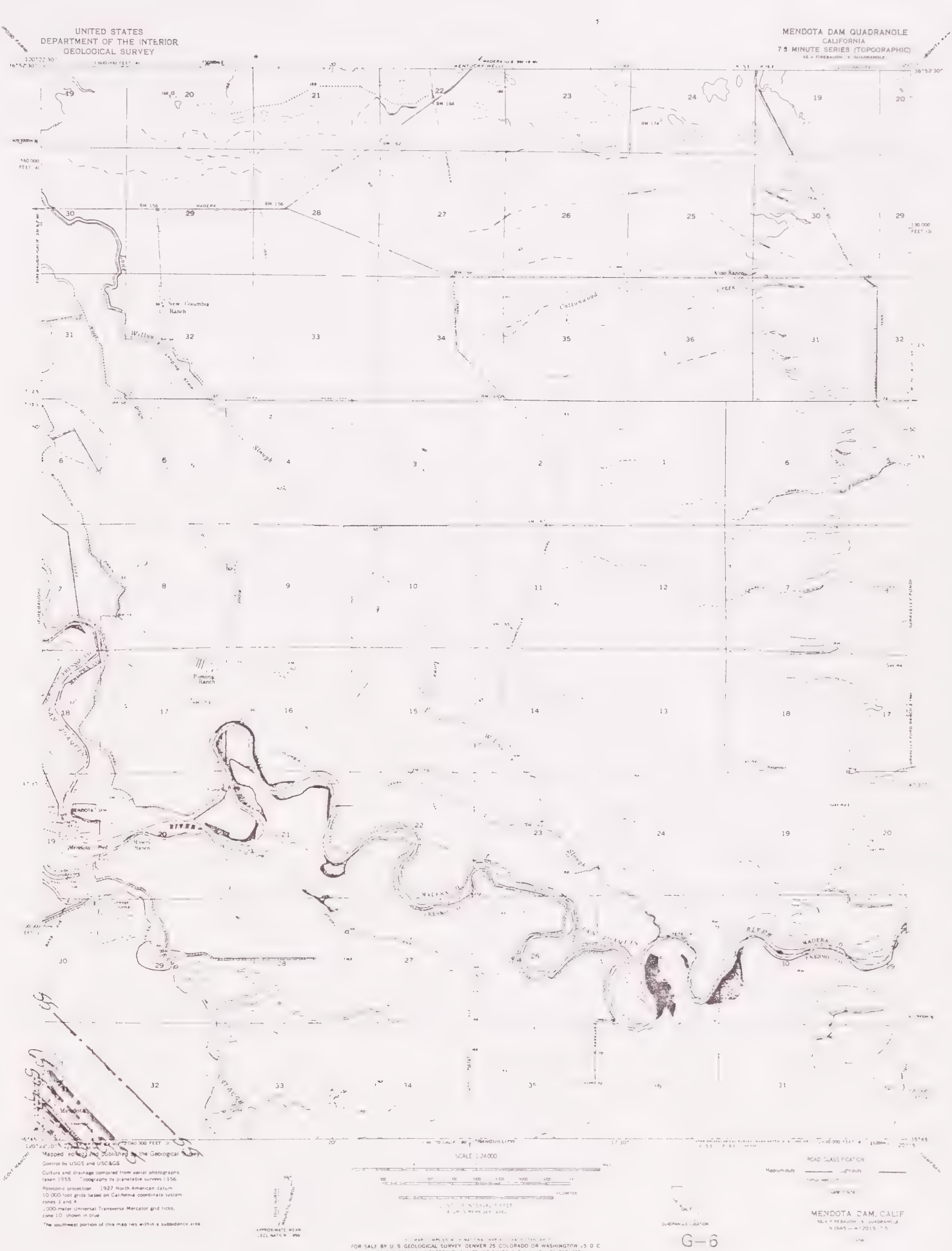

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GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
LAGUNA SECA RANCH QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SALINAS VALLEY
PARKFIELD

G-2

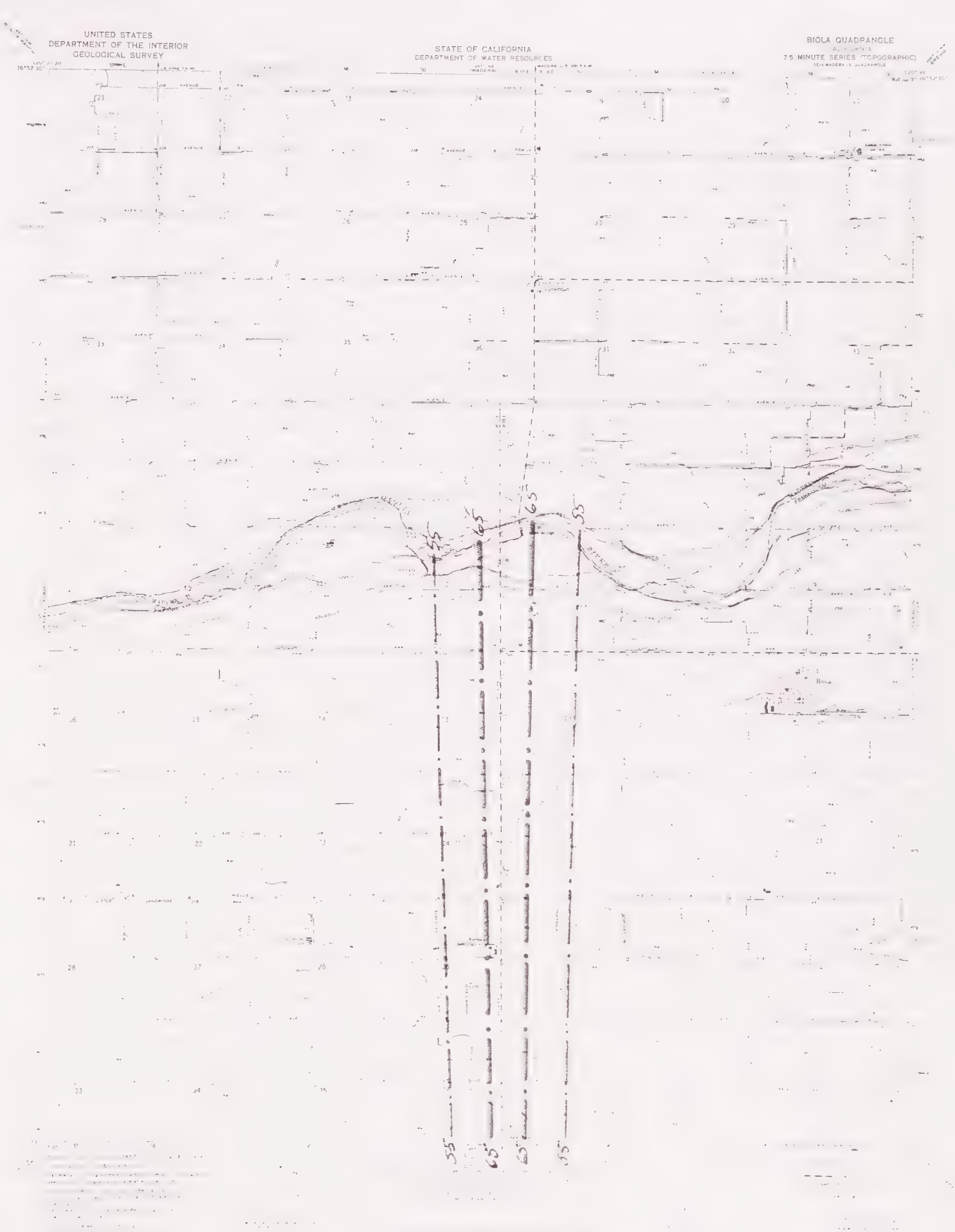


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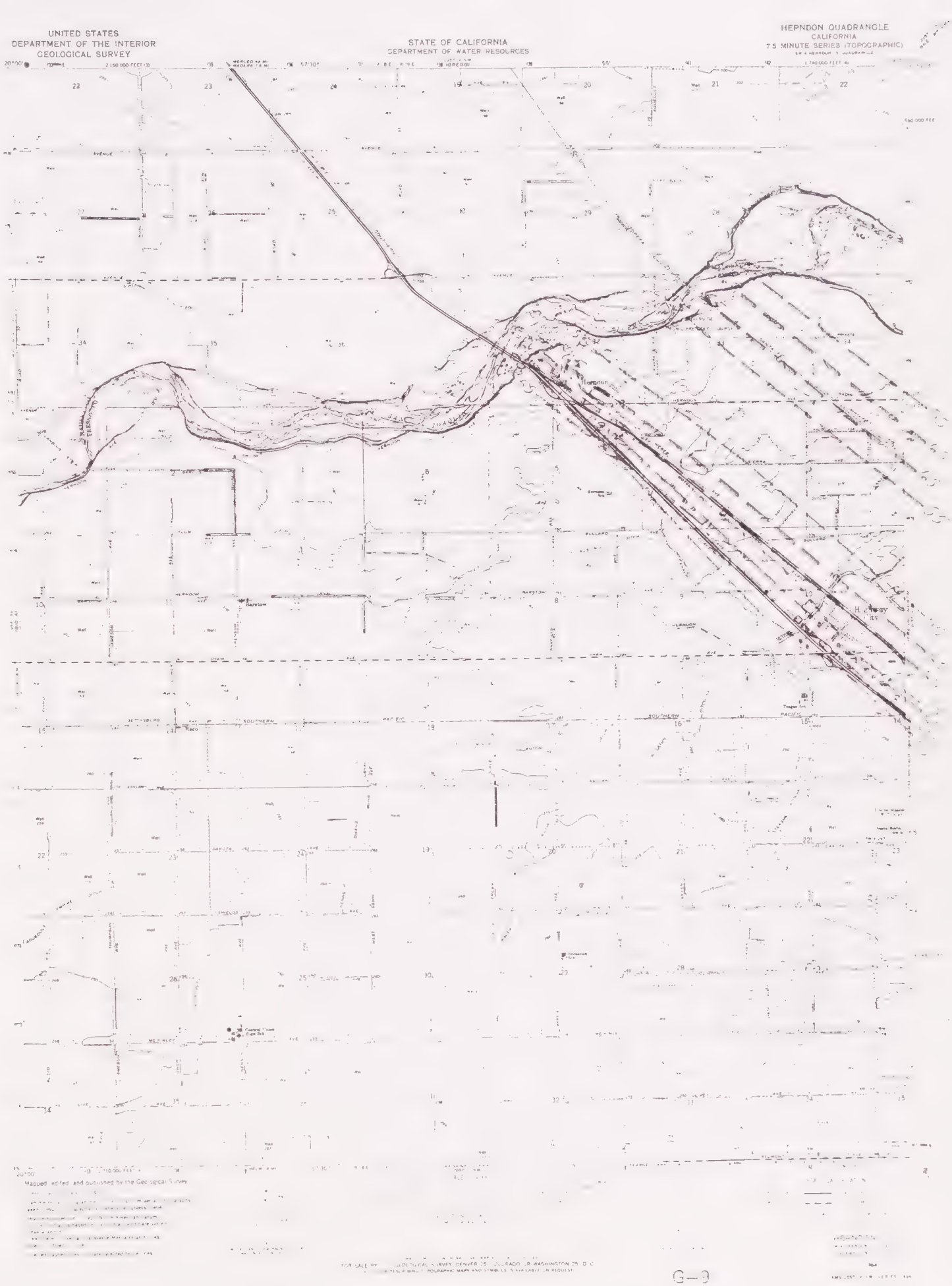

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
FIREBAUGH QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
Firebaugh
Mills Sch
Parkside Sch
Eastside Ranch
Bonita
Los Delton Ranch
Los Delton Sch
Gromis
Herrin Ranch
Men Ranch
SAN JOAQUIN RIVER
MADERA CO
Mapped, edited and published by the Geological Survey
Control by USGS and USC&GS
Aerial photographs taken 1955
Polyconic projection
1927 North American datum
10,000-foot grid based on California coordinate system, zone 4
1000-meter Universal Transverse Mercator grid ticks, zone 10
ROAD CLASSIFICATION
Light duty
Unimproved dirt
State Route
FIREBAUGH, CALIF.
N3645—W12052.5/7.5
1956
AMS 3557 IV SW—SERIES V895
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
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DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
MENDOTA DAM QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SCALE 1:24 000
ROAD CLASSIFICATION
MENDOTA DAM, CALIF.
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Culture and drainage compiled from aerial photographs taken 1955. Topography by planetable surveys 1956
Polyconic projection. 1927 North American datum
10 000-foot grids based on California coordinate system zones 3 and 4
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue
The southwest portion of this map lies within a subsidence area
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
Fresno Dam
New Columbia Ranch
Pimona Ranch
Mendota Pool
Mendota
Slough
Willow
Cottonwood
Fresno Slough
San Joaquin River
Madera Canal
Fresno Canal
Mendota Canal
Firebaugh
Tranquillity

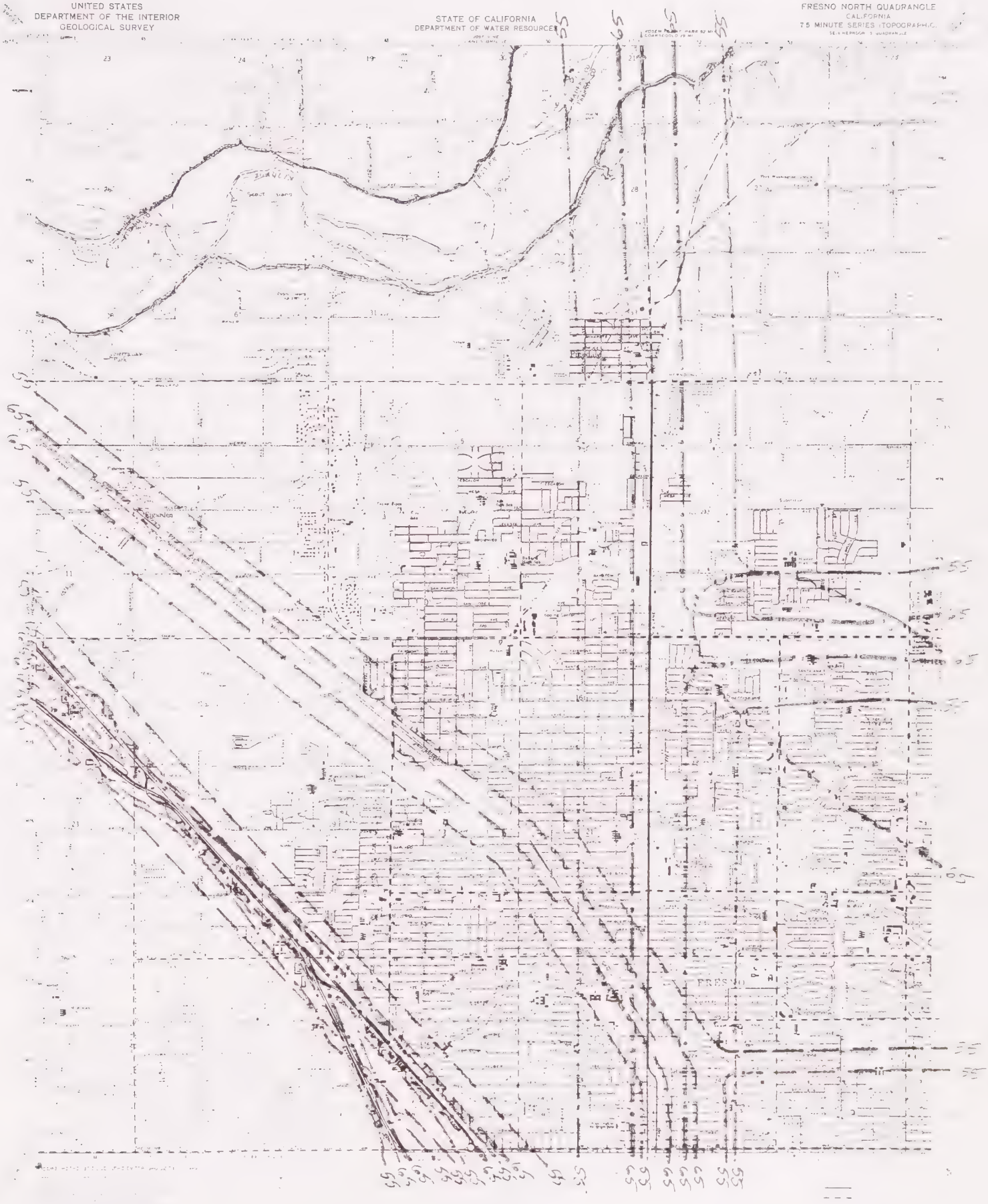
G–6

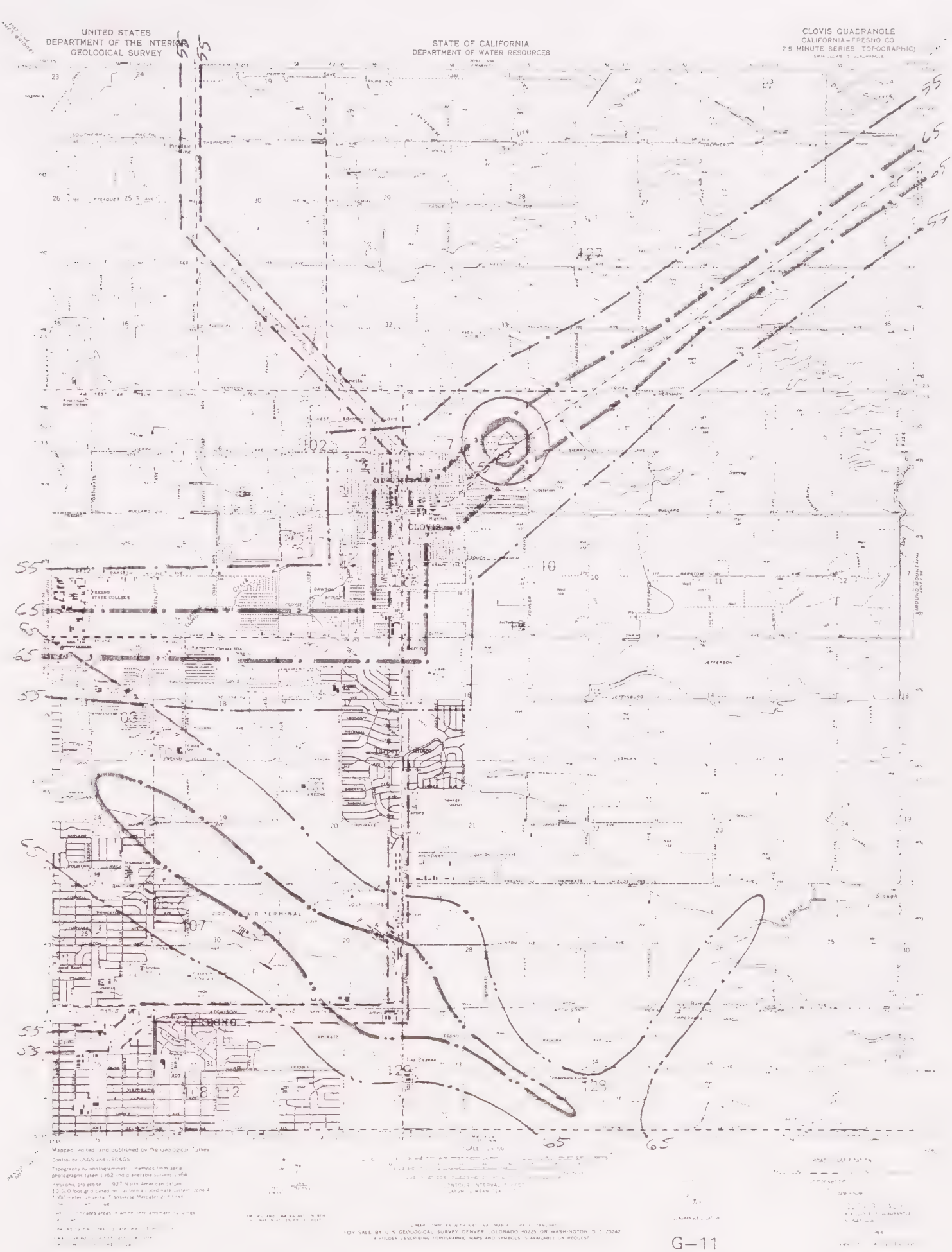

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
BIOLA QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)
55'
65'
65'
55'

Prepared by

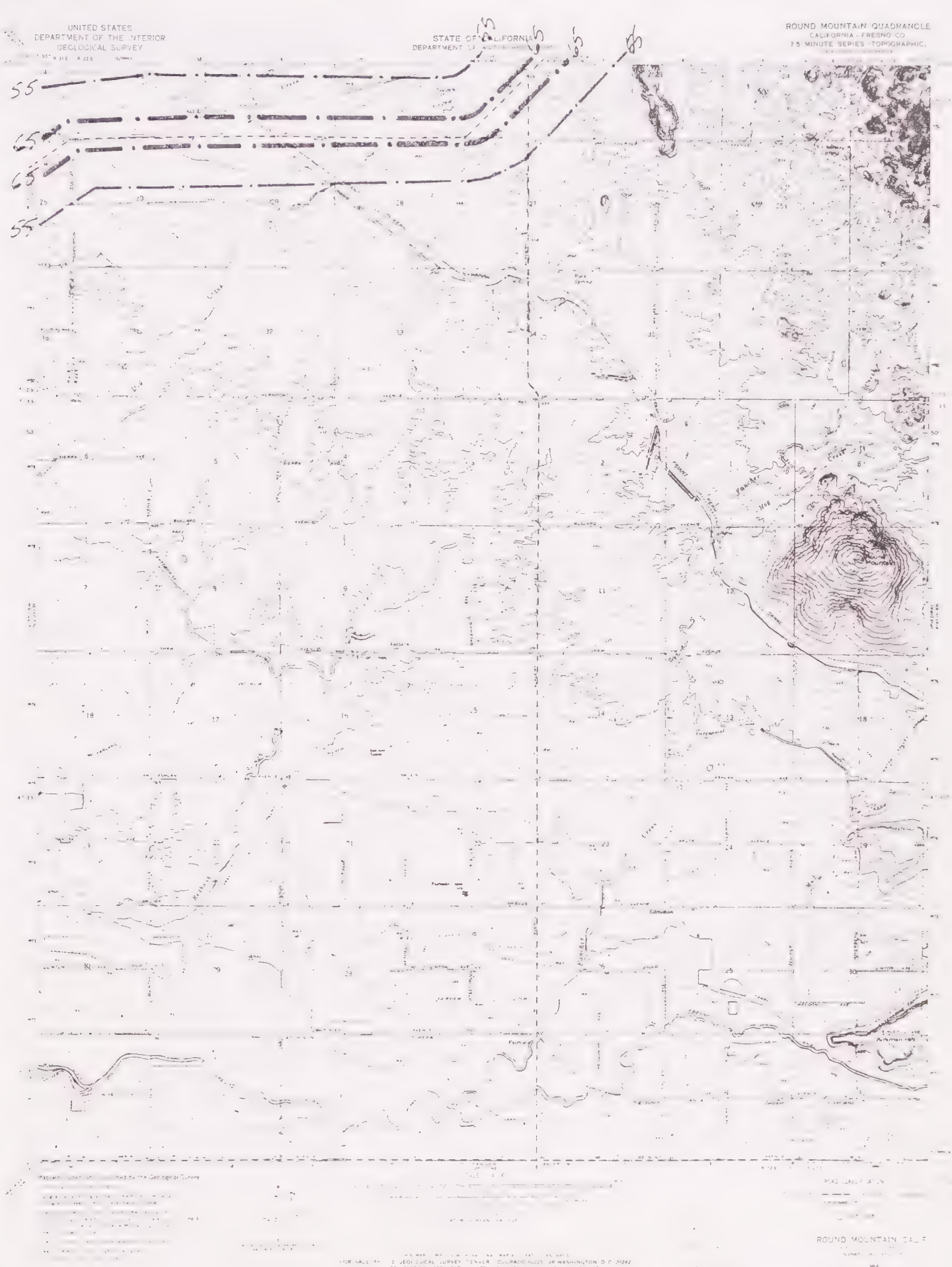


Prepared by Council of Fresno County G

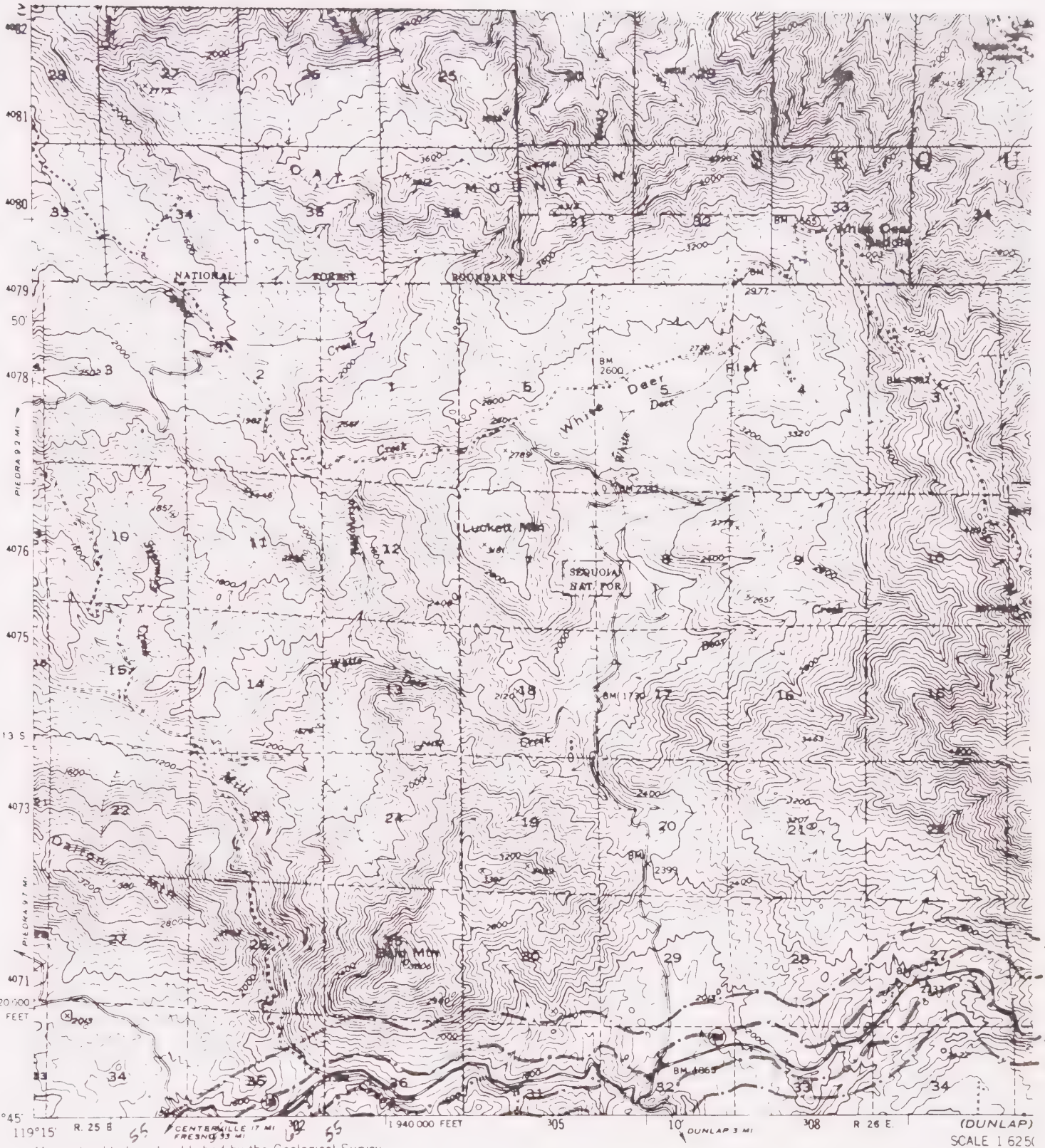

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
FRESNO NORTH QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
Fresno
Clovis
FRESNO


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
CLOVIS QUADRANGLE
CALIFORNIA—FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
CLOVIS
FRESNO
FRESNO STATE COLLEGE
FRESNO AIR TERMINAL
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography by photogrammetric methods from aerial photographs taken 1952 and ground surveys 1954
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 4
Transverse Mercator projection
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G–11



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Topography from aerial photographs by multiplex methods
Aerial photographs taken 1948 Field check 1952

Polyconic projection 1927 North American datum
10,000-foot grid based on California coordinate system, zone 4

Blue hatching indicates area to be submerged by Pine Flat Reservoir
Spillway elevation 916 5 feet

Dashed land lines indicate approximate locations

Unchecked elevations are shown in brown

1000-meter Universal Transverse Mercator grid ticks, zone 11, shown in blue

GN MN
1°17' 16½°
23 MILS 293 MILS

UTM GRID AND 1952 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

3000 0 3000 6000 9000

1 5 0 1 2

G–15

CONTOUR INTERVAL
DATUM IS MEAN SEA

Prepared by: Council of Fresno County Governments

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A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND



(LAP) 2157 II

1 62500

GRANT GROVE (CA)
CEDAR GROVE 44 MI

INTERIOR—GEOLOGICAL SURVEY
WASHINGTON, D. C.—1957

2 3 4 MILES

000 12000 15000 18000 21000 FEET

2 3 4 5 KILOMETERS

ERVAL 80 FEET
AN SEA LEVEL

ROAD CLASSIFICATION

Heavy-duty — 4 LANE, 6 LANE — Light-duty

Medium-duty — 4 LANE, 6 LANE — Unimproved dirt

U. S. Route State Route

G—16

Prepared by Council of Fresno County Governments

CALIF.

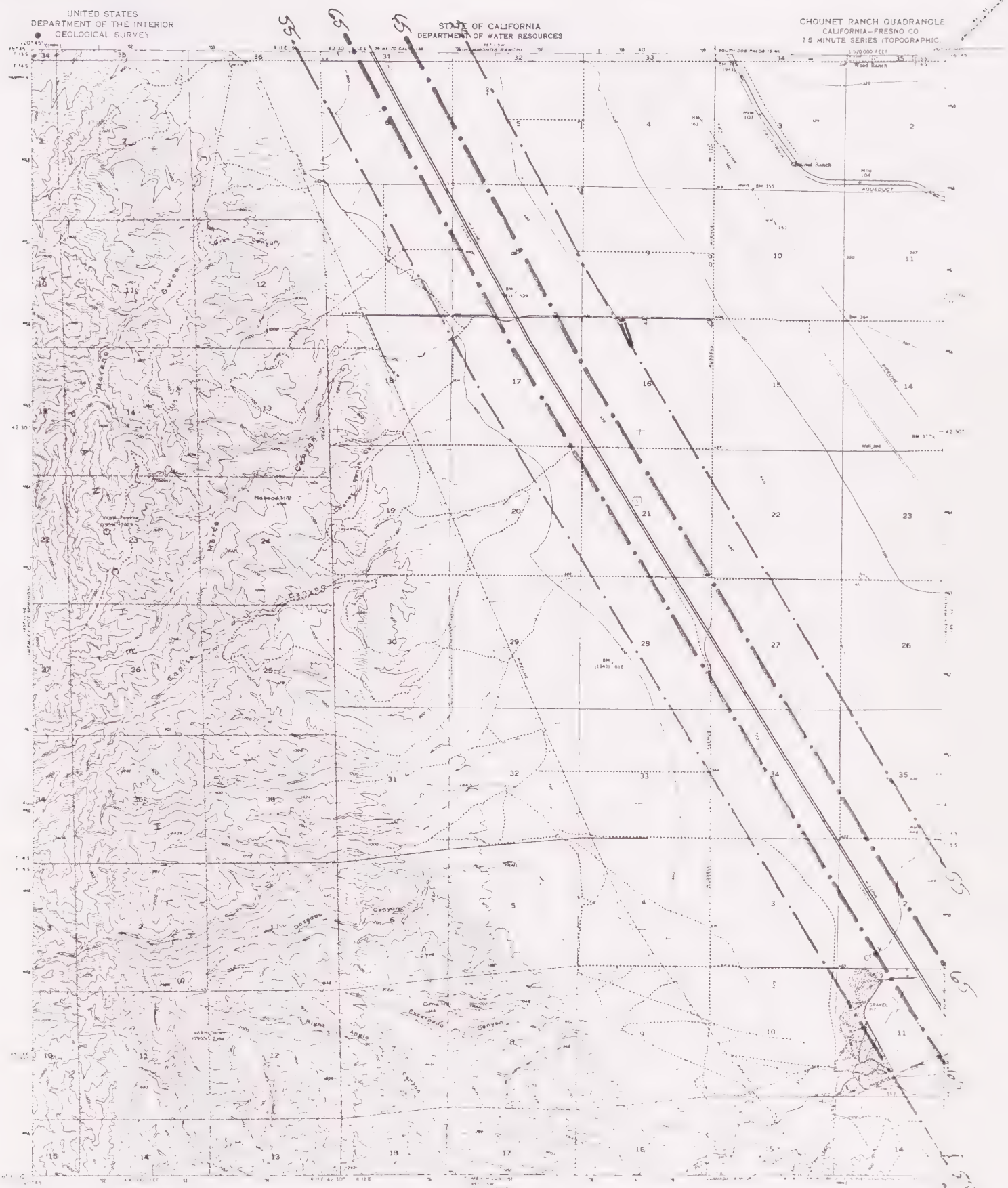
QUADRANGLE LOCATION

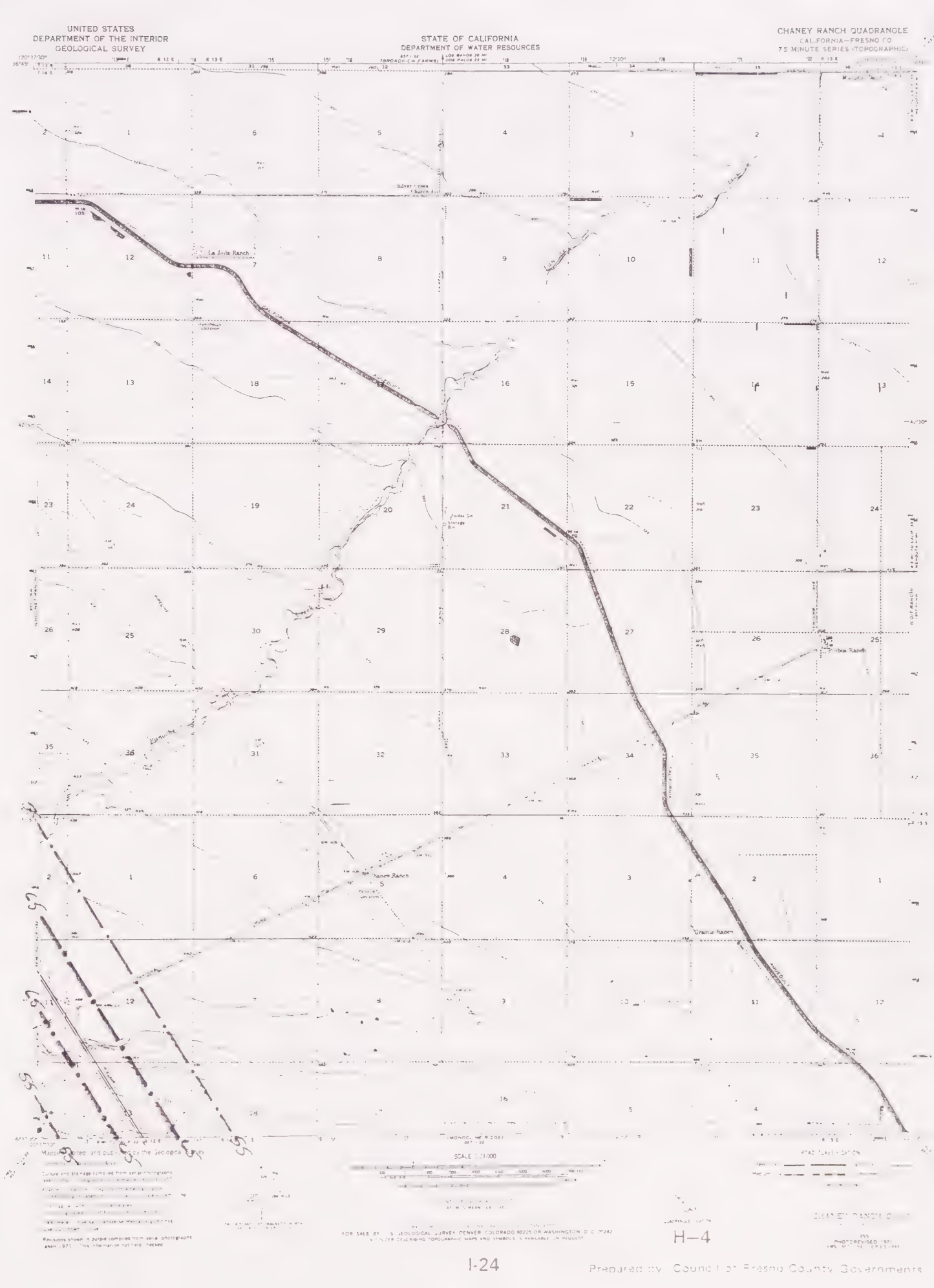
PATTERSON MTN., CALIF.

N3645—W11900/15

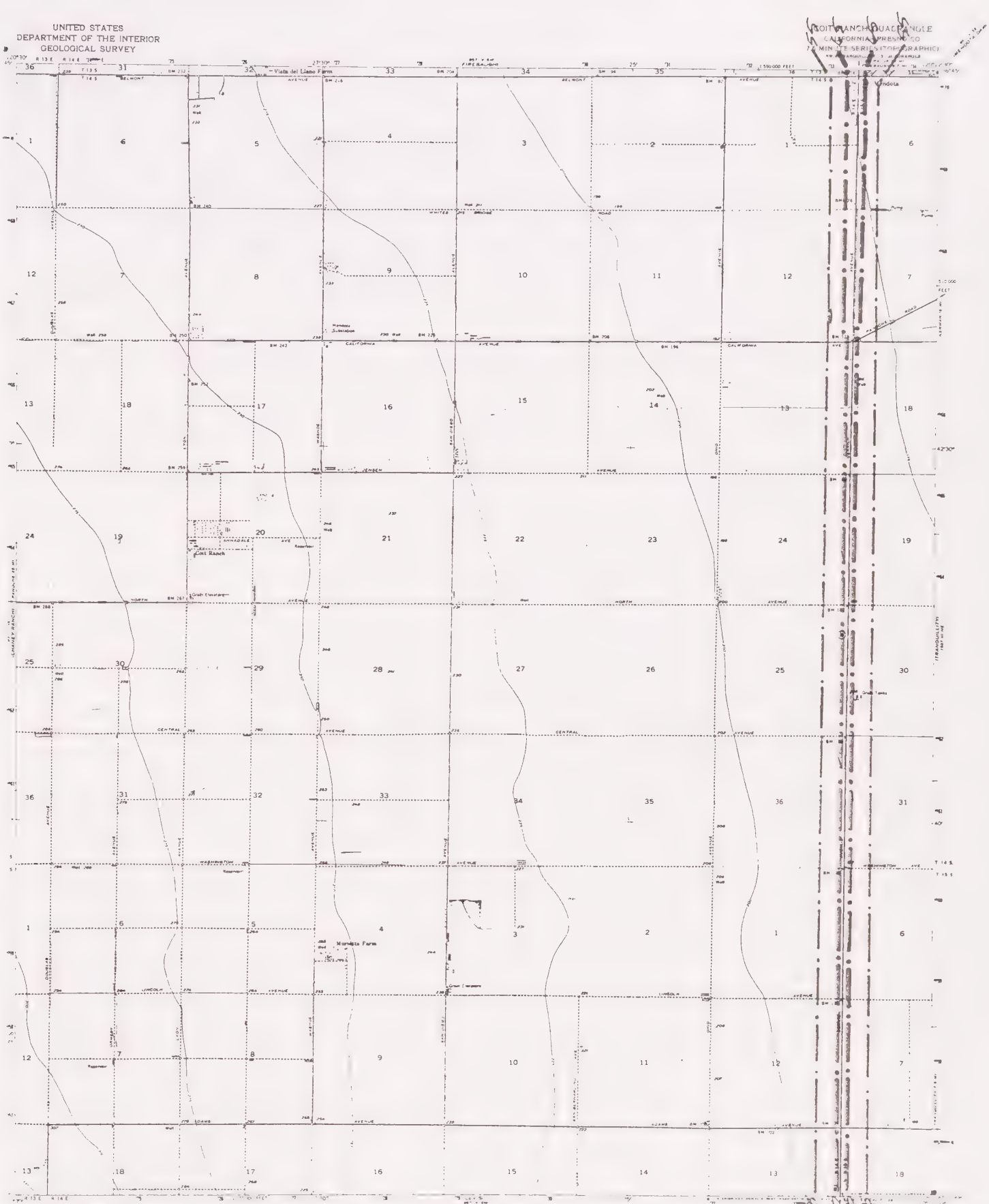
1952

)NAL MAP ACCURACY STANDARDS
R, COLORADO 80225 OR WASHINGTON, D. C. 20242
'S AND SYMBOLS IS AVAILABLE ON REQUEST


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
CHOUNET RANCH QUADRANGLE
CALIFORNIA—FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
Wood Ranch
Chounet Ranch
AQUEDUCT
Nebecker
Coyote
Dos Palos
Mapped, edited and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods and by planetable surveys 1956
Polyconic projection. 1927 North American datum
10,000 foot grid based on California coordinate system, zone 4
1,000 meter Universal Transverse Mercator grid, zone 10, shown in blue
Dashed lines indicate approximate boundaries
Unchecked elevations are shown in parentheses
The east portion of this map is within Yosemite Valley
A vertical control readjustment of 1954 was applied
Revisions shown in purple compiled from aerial photographs taken 1971. This information not field checked
ROAD CLASSIFICATION
Unimproved dirt
Light duty
Medium duty
CHOUNET RANCH, CALIF.
PHOTOREVISED 1971
H—3


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
CHANEY RANCH QUADRANGLE
CALIFORNIA—FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
La Jolla Ranch
Chaney Ranch
Drums Ranch
SCALE 1:24000

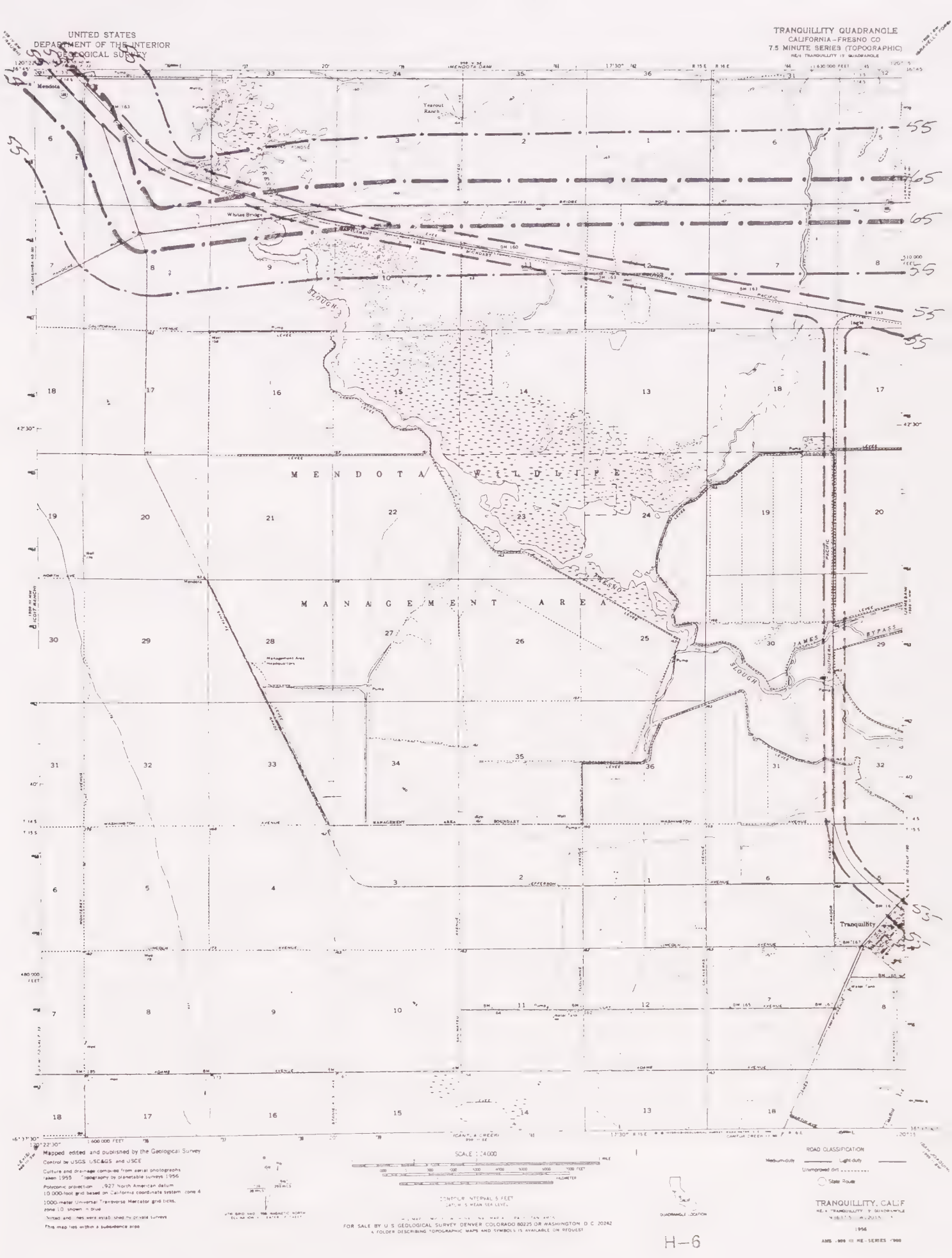
H—4

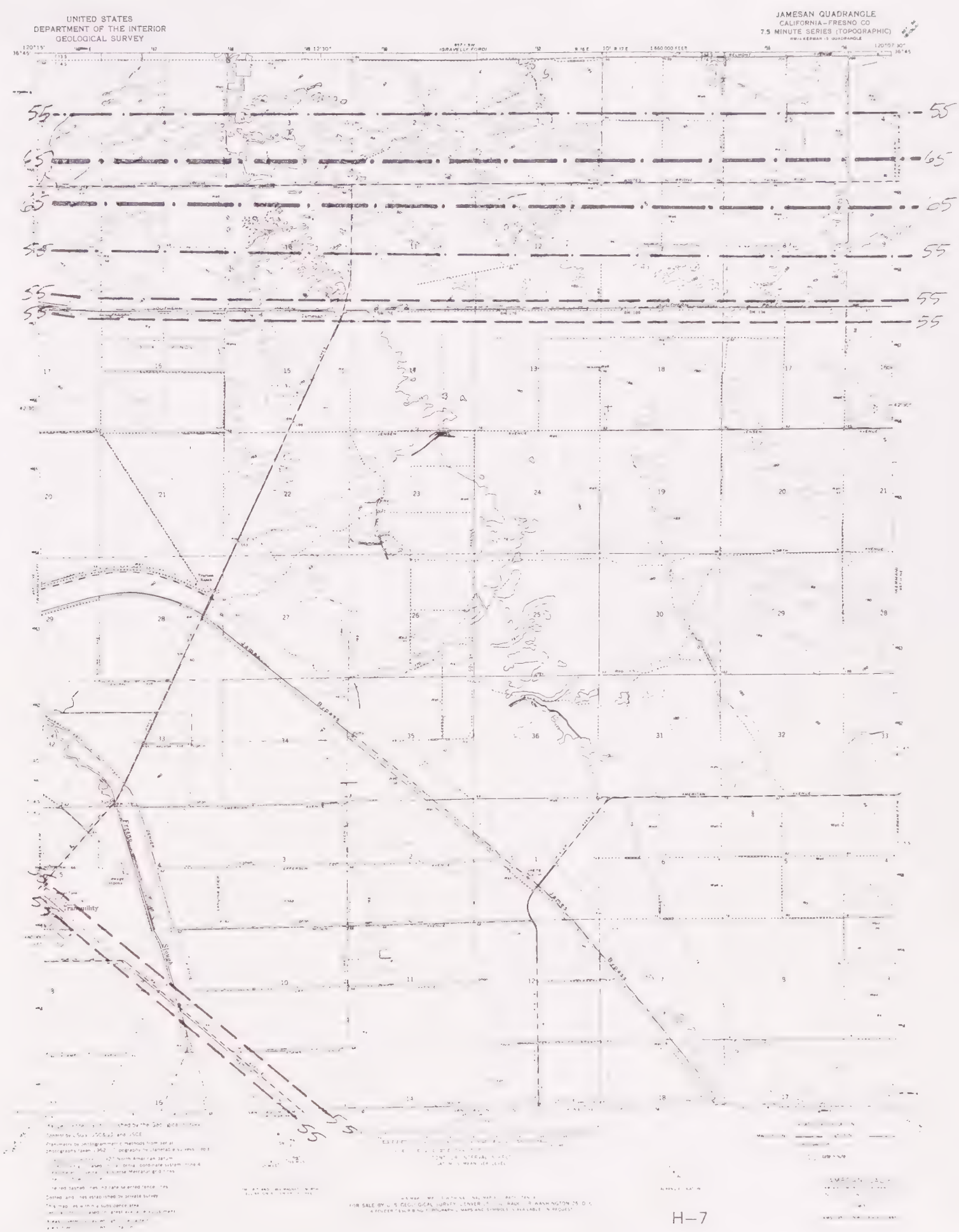


H–5

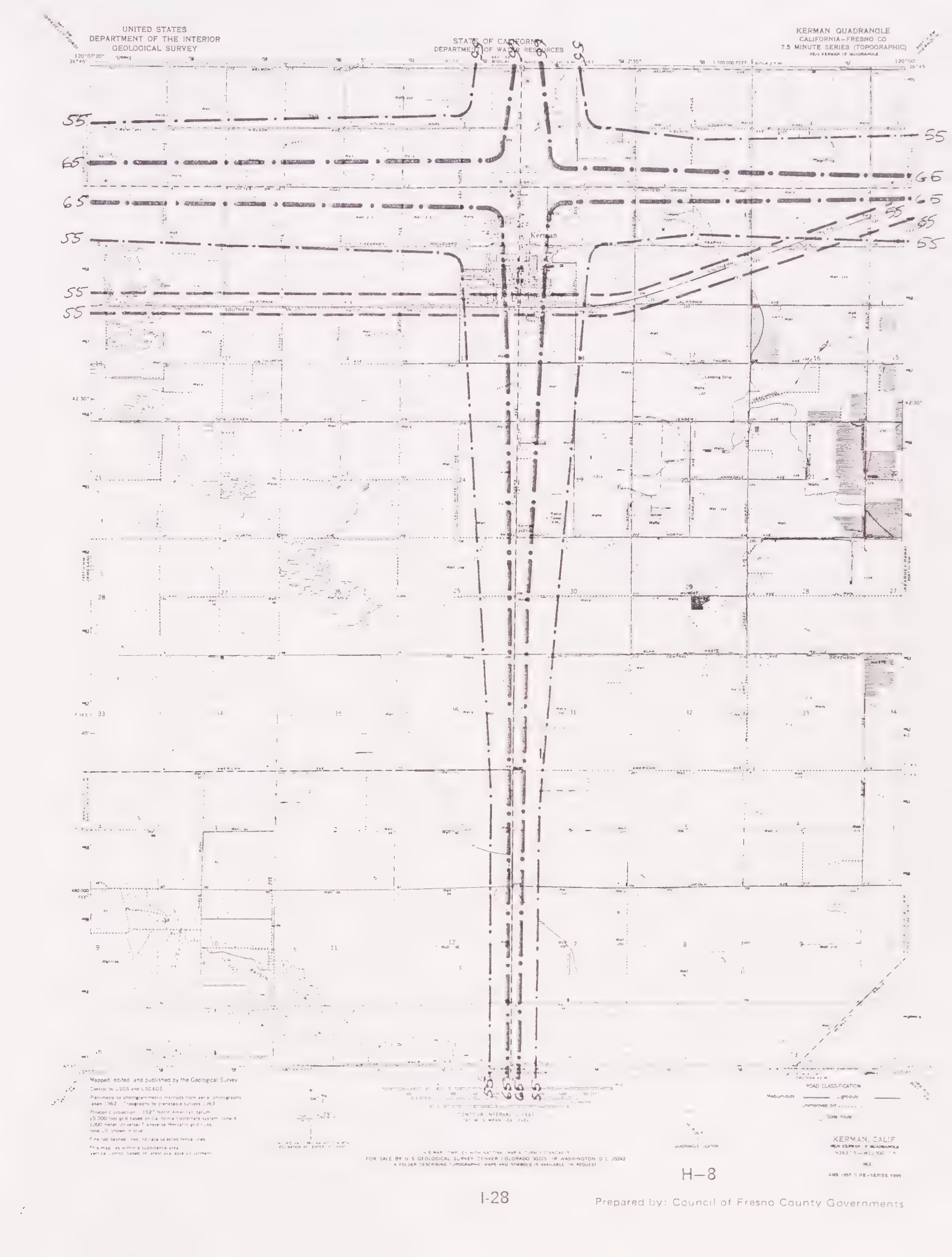
I-25

Prepared by

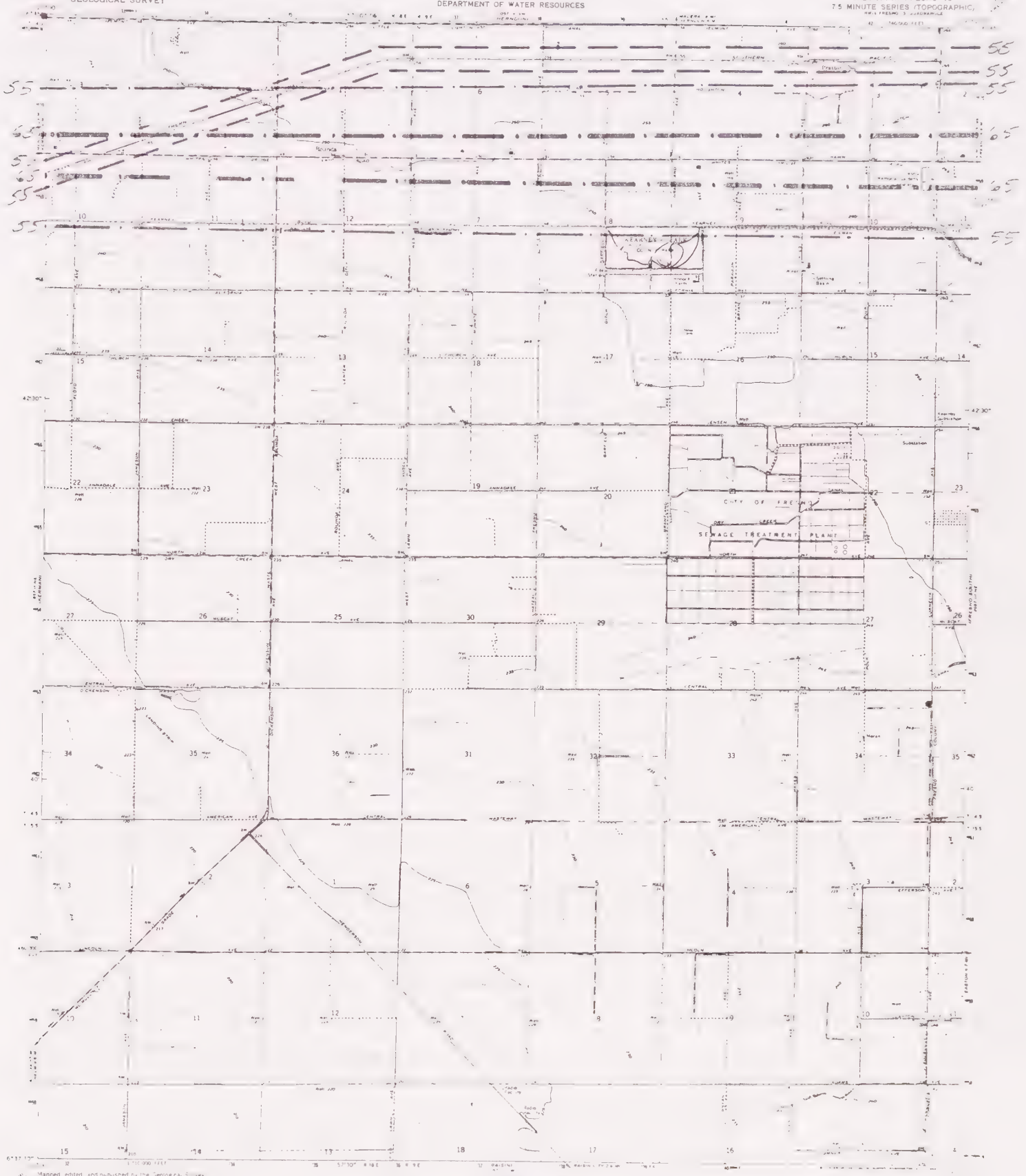

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
TRANQUILLITY QUADRANGLE
CALIFORNIA-FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
Mendota
Yearout Ranch
Whites Bridge
SLOUGH
MENDOTA WILDLIFE
MANAGEMENT AREA
JAMES BYPASS
SLOUGH
Tranquility
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Culture and drainage compiled from aerial photographs taken 1955. Topography by planetable surveys 1956
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 4
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue
Fence lines were established by private surveys
This map lies within a subsidence area
SCALE 1:24000
CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL
ROAD CLASSIFICATION
Medium-duty
Light duty
Unimproved dirt
State Route
TRANQUILLITY, CALIF.
1956
H-6


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
JAMESAN QUADRANGLE
CALIFORNIA-FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
55
65
Kamm
Bypass
James
Bypass
Flood
Control
Railroad

H-7

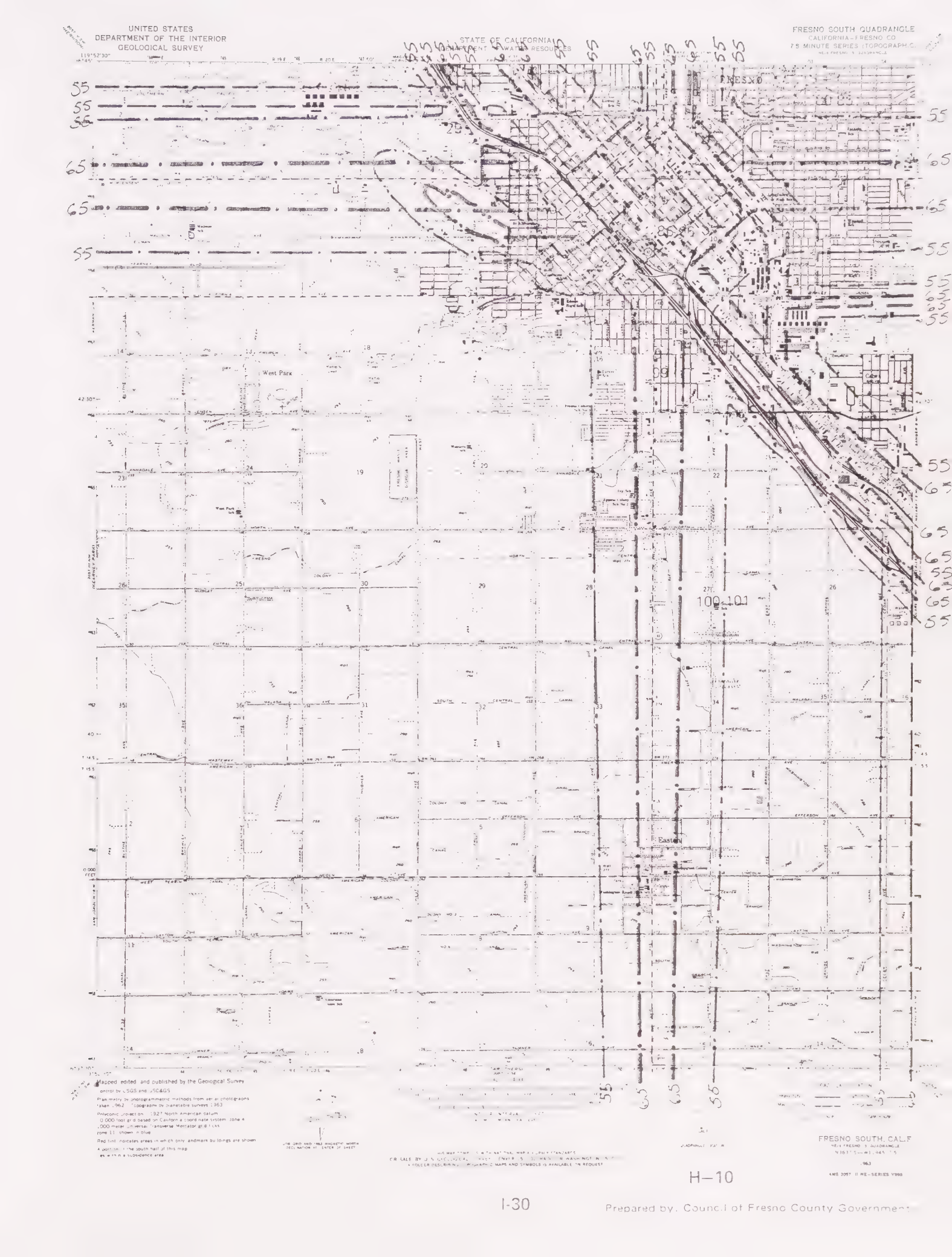

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
KERMAN QUADRANGLE
CALIFORNIA—FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
Kerman
Landing Strip
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Planimetry by photogrammetric methods from aerial photographs taken 1962. Topography by planetable surveys 1963
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 4
1,000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue
Fine red dashed lines indicate selected fence lines
This map lies within a subsidence area
Vertical control based on latest available adjustment
CONTOUR INTERVAL 5 FEET
ROAD CLASSIFICATION
Medium-duty
Light-duty
Unimproved dirt
State Route
KERMAN, CALIF.
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
1963
AMS 7057 II NE—SERIES V895

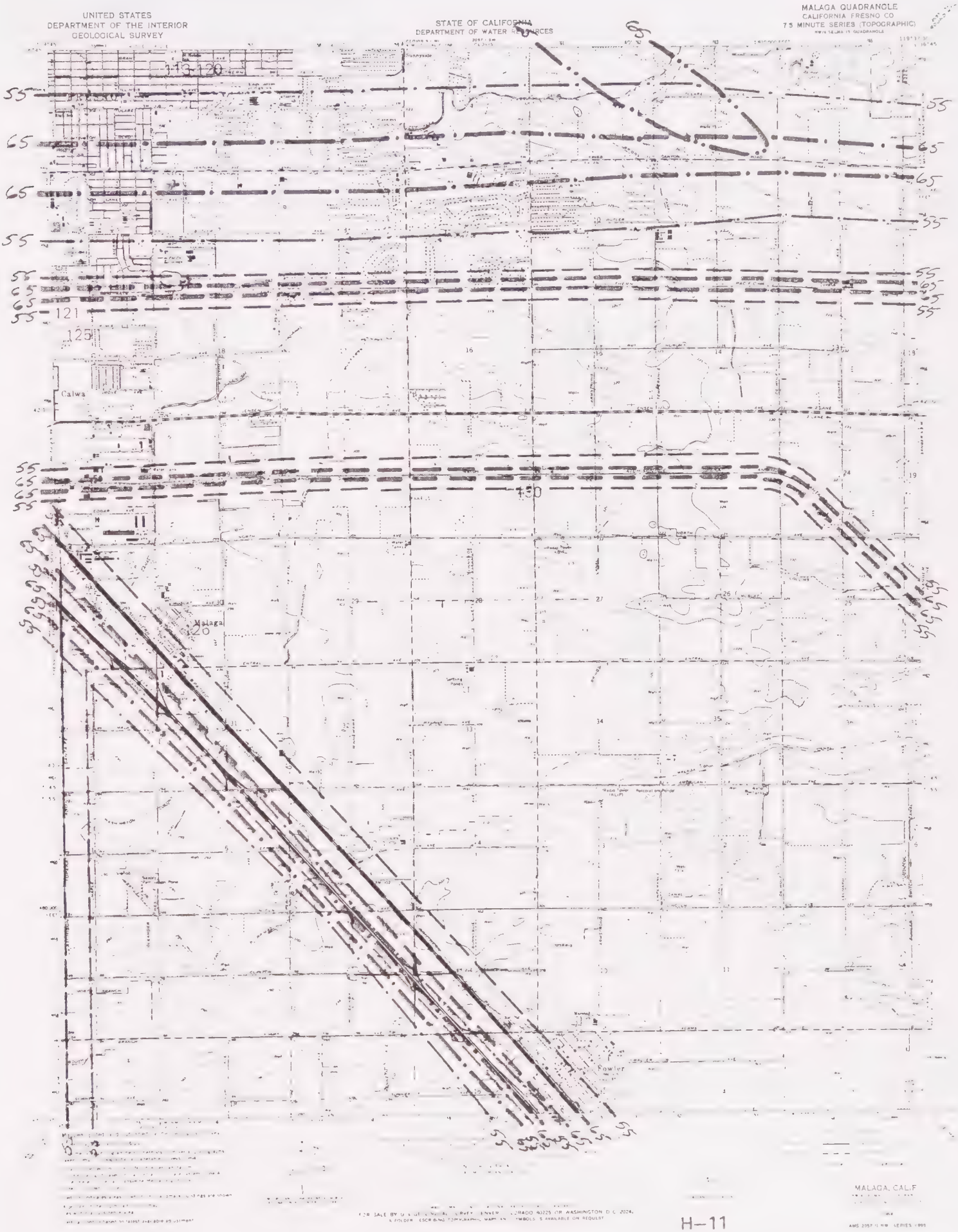
H–8

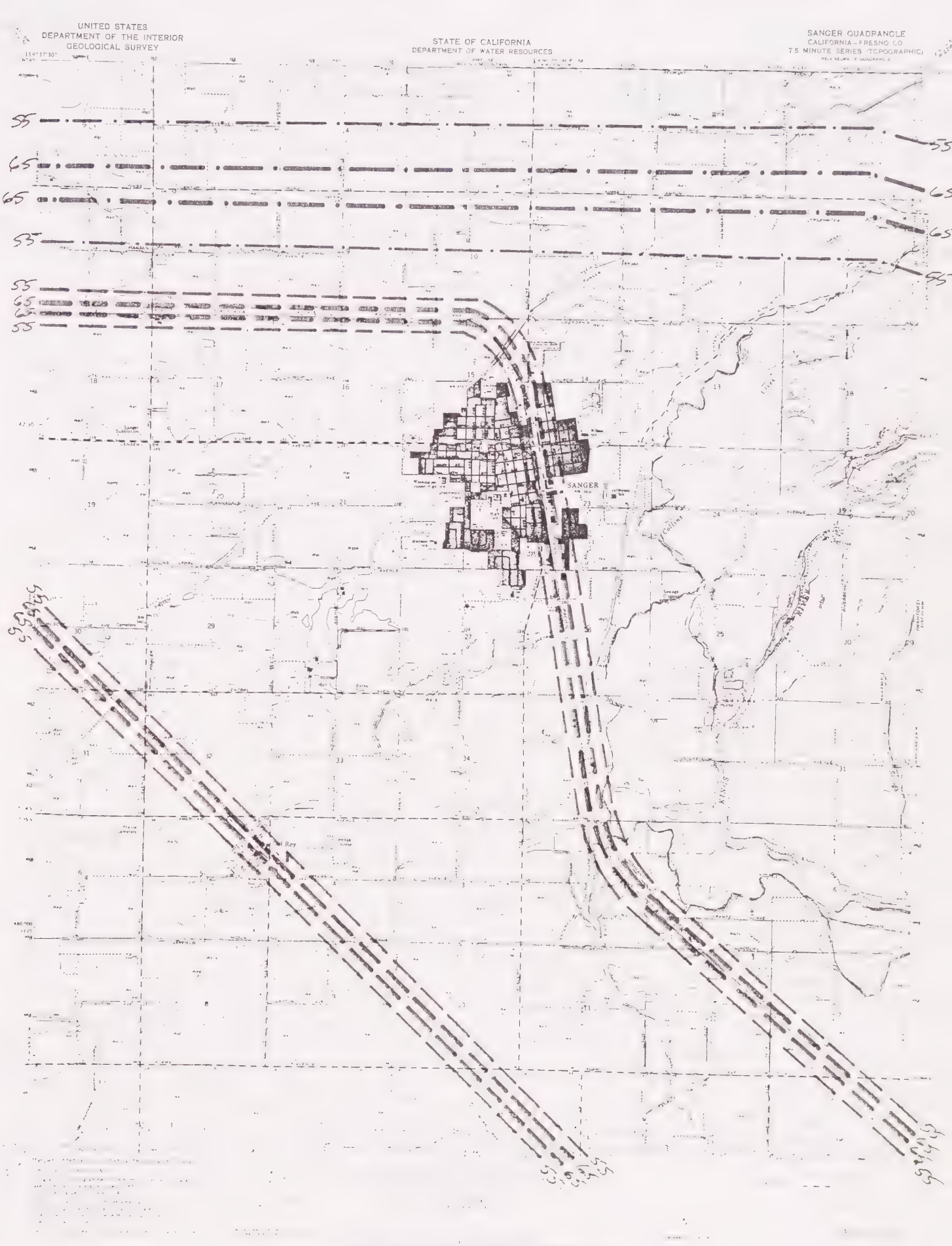


H–9

Prepared by Council of Fresno County


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
FRESNO SOUTH QUADRANGLE
CALIFORNIA—FRESNO CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
FRESNO
West Park
Easton
100
101
FRESNO SOUTH, CALIF.
1963
H—10
I-30
Prepared by: Council of Fresno County Governments


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
MALAGA QUADRANGLE
CALIFORNIA FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
Calwa
Malaga
Fowler
MALAGA, CALIF.



H—12

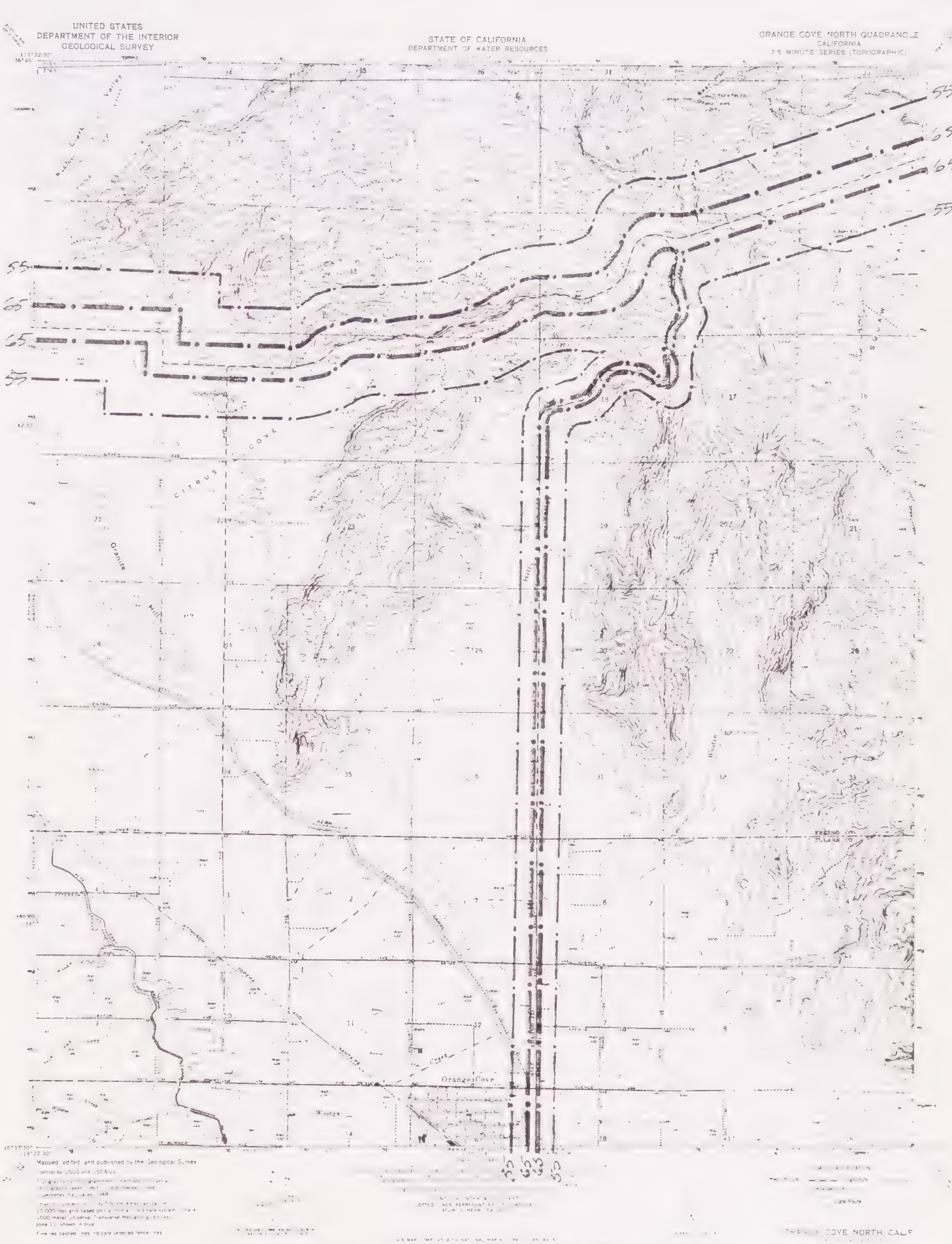
Prepared by: Council of Fresno County Governments



H–13

I-33

Prepared by: Council of Fresno County Governments

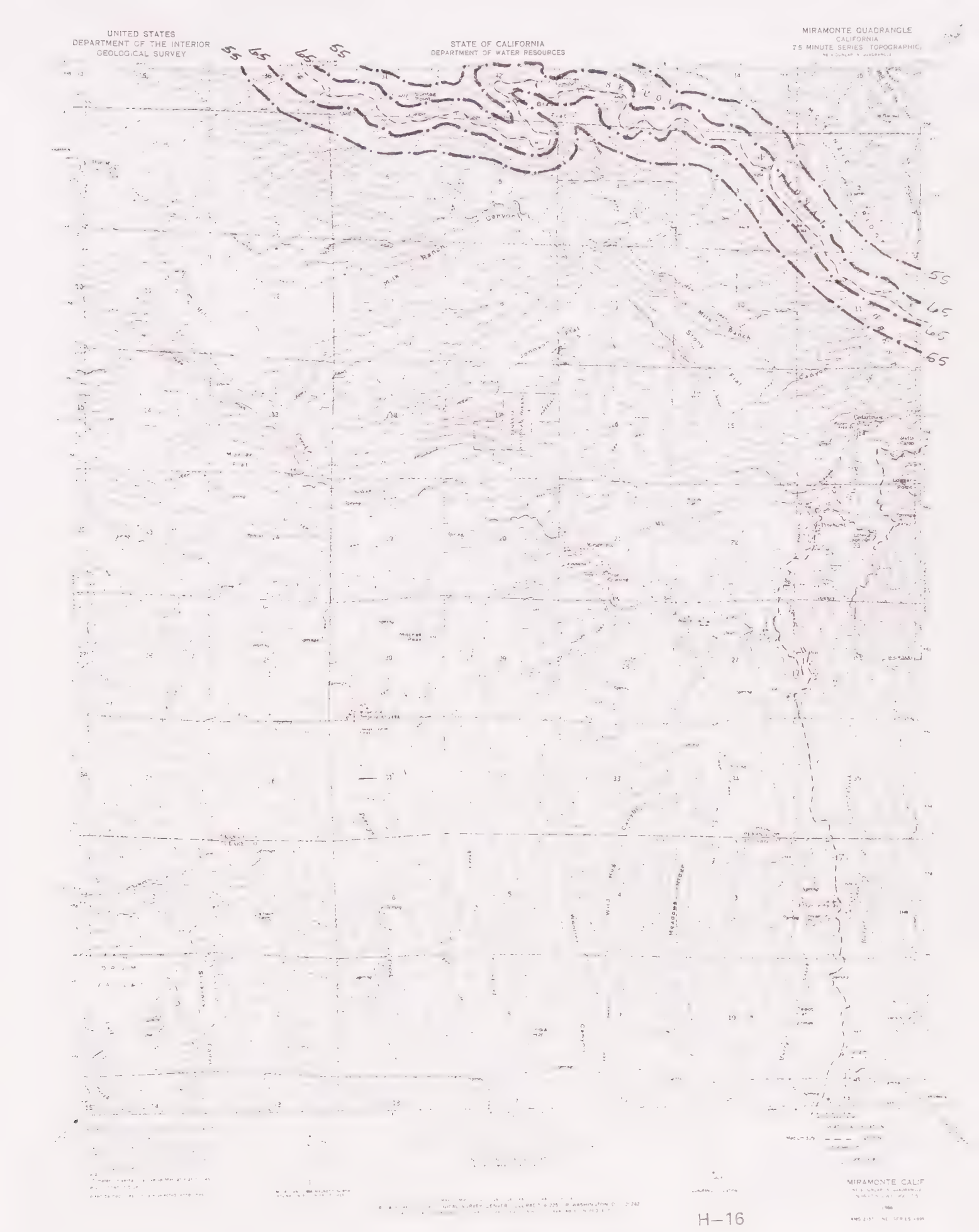


H-14

Prepared by Council of

H-15

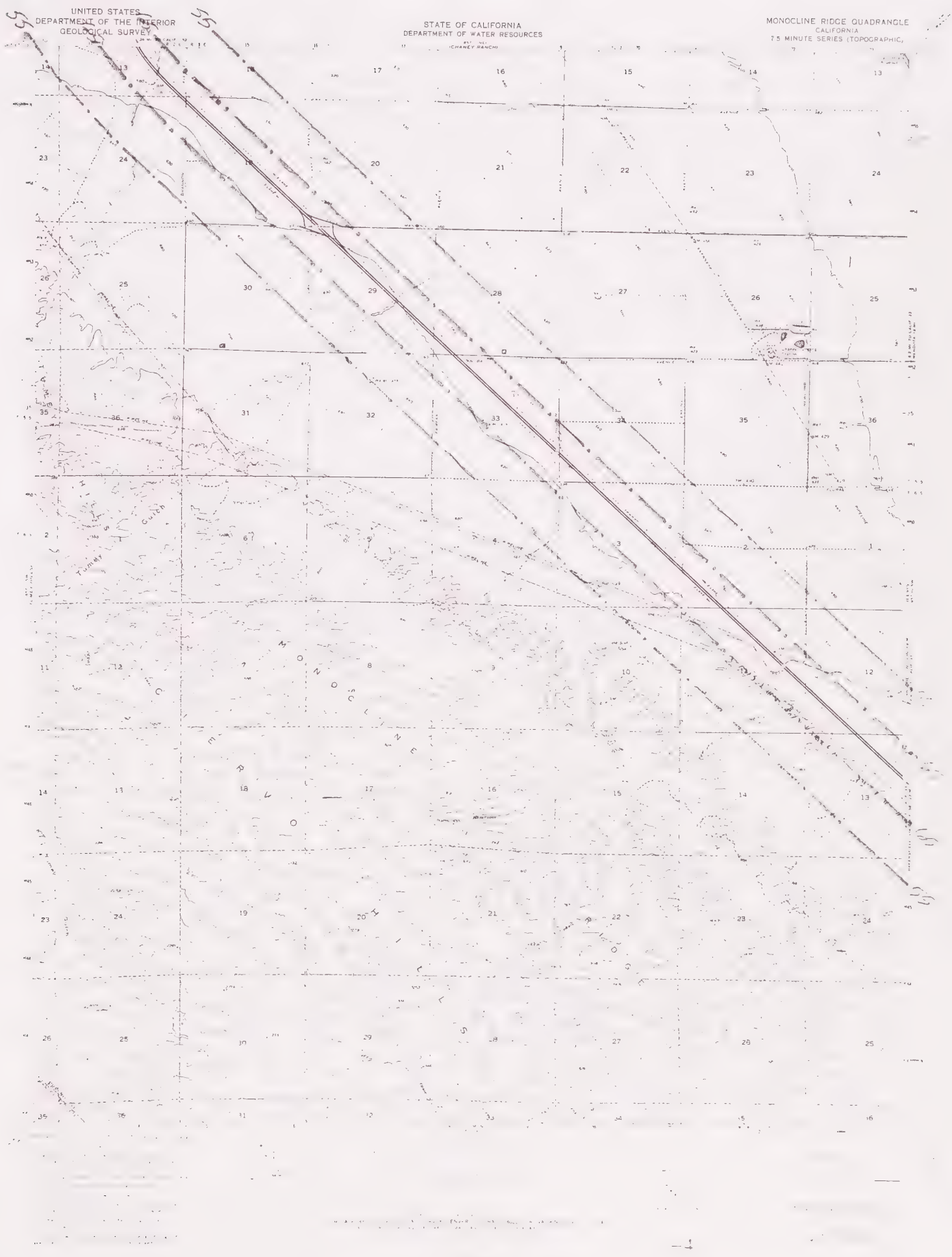
Prepared by [illegible] of Fresno County Governments

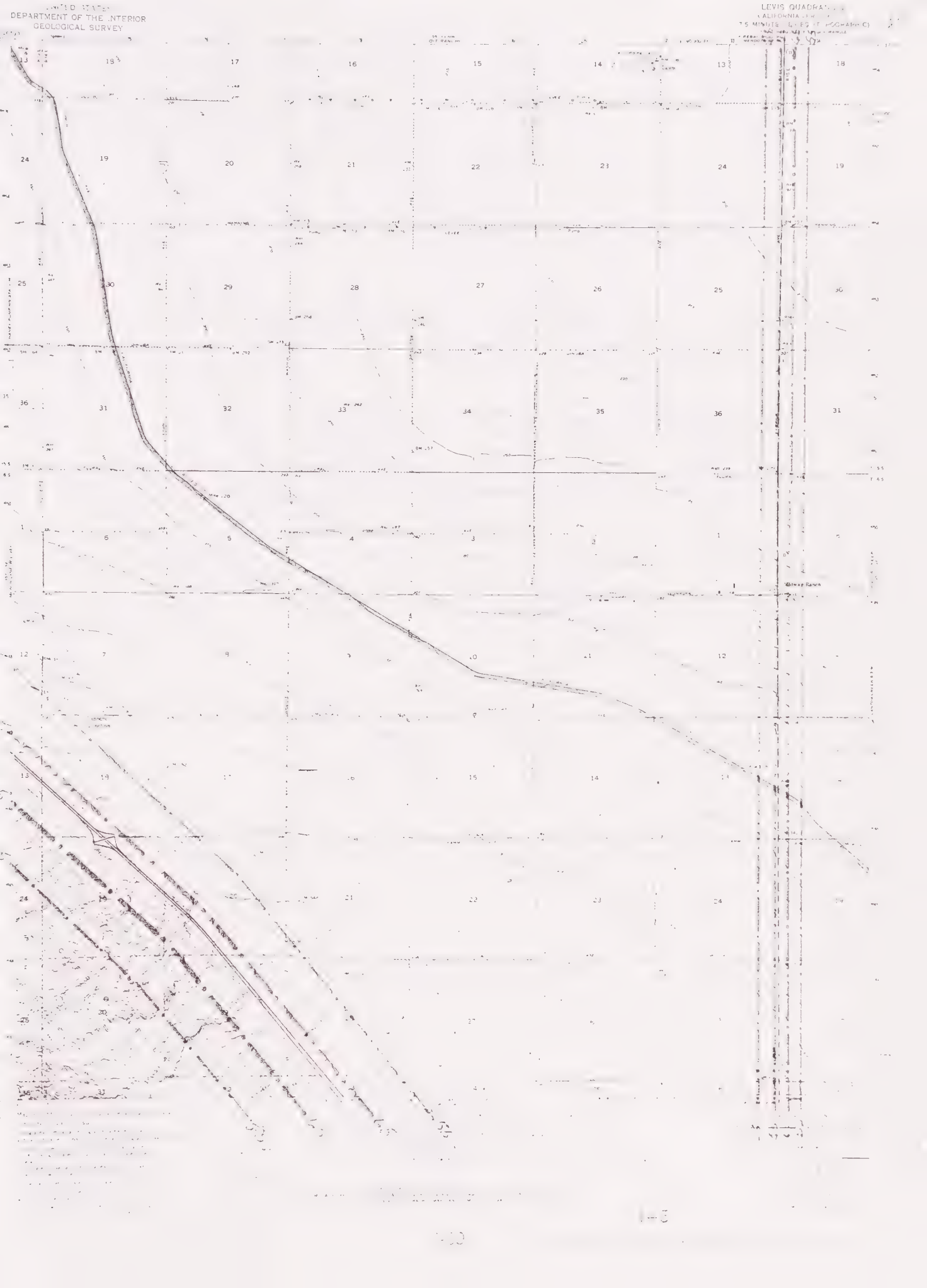


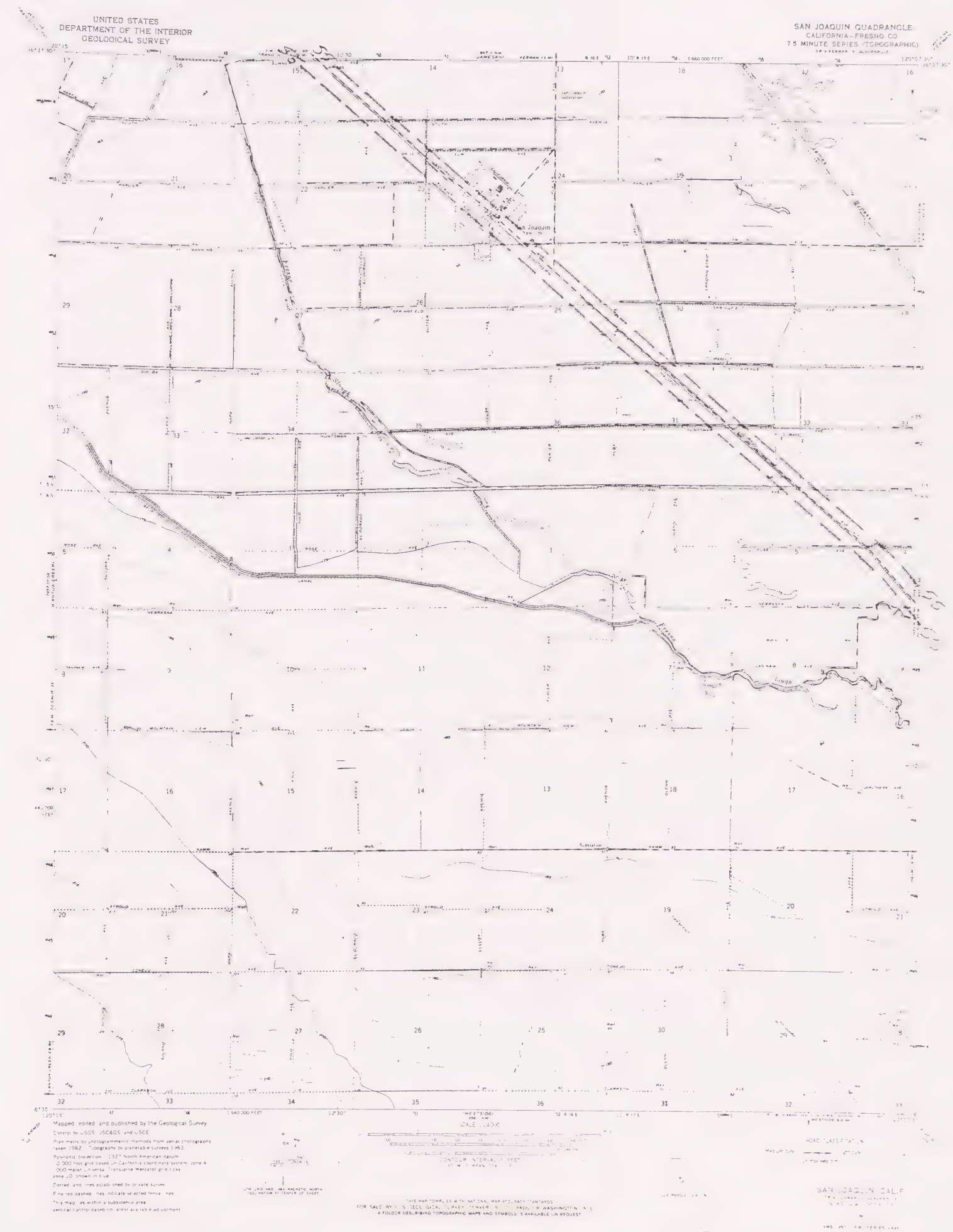
Prepared by: Council of Fresno County Governments


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
SEQUOIA
NATIONAL
FOREST
REDWOOD
MOUNTAIN
GROVE
GENERAL GRANT GROVE SECTION
KINGS CANYON NAT'L PARK
Big Stump Entrance Station
Sequoia Guard Sta
Grouse Meadow
Whitaker Forest
(Univ of Calif)
Buena Vista Peak
Log Corral Meadow
Bacon Mdw
Quail Flat
Kings Canyon Overlook
Hitchcock Mdw
Sequoia Lake
Redwood Creek
Redwood Canyon
Big Baldy
Hartland
Sierra Glen
Reservoir
Ebhom Point
Cherry Flat
Prospect Big Springs
FRESNO CO
TULARE CO

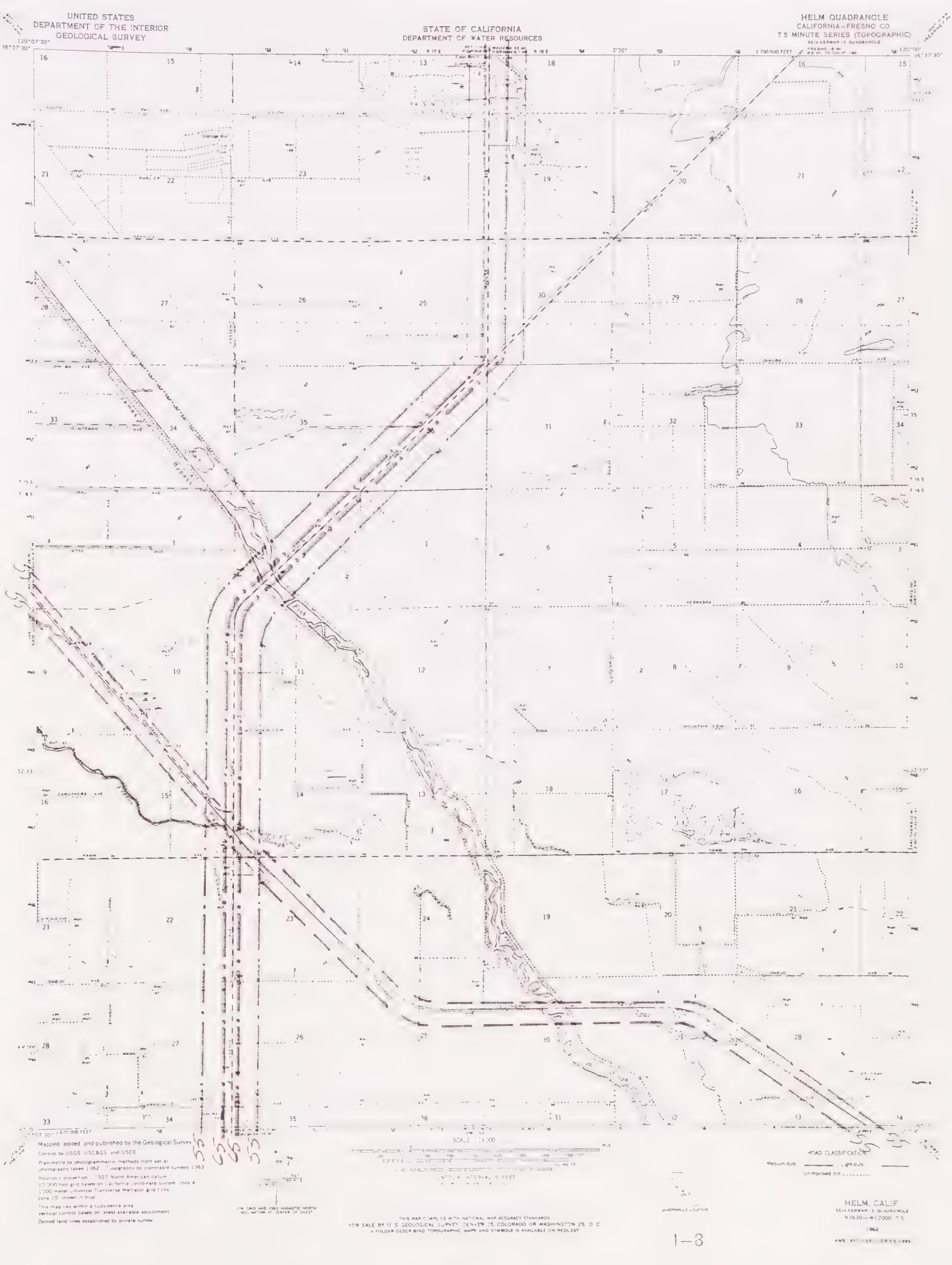
H-17


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
MONOCLINE RIDGE QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
CHANEY RANCH
Turkey Gulch
MONOCLINE RIDGE
MONOCLINE VALLEY

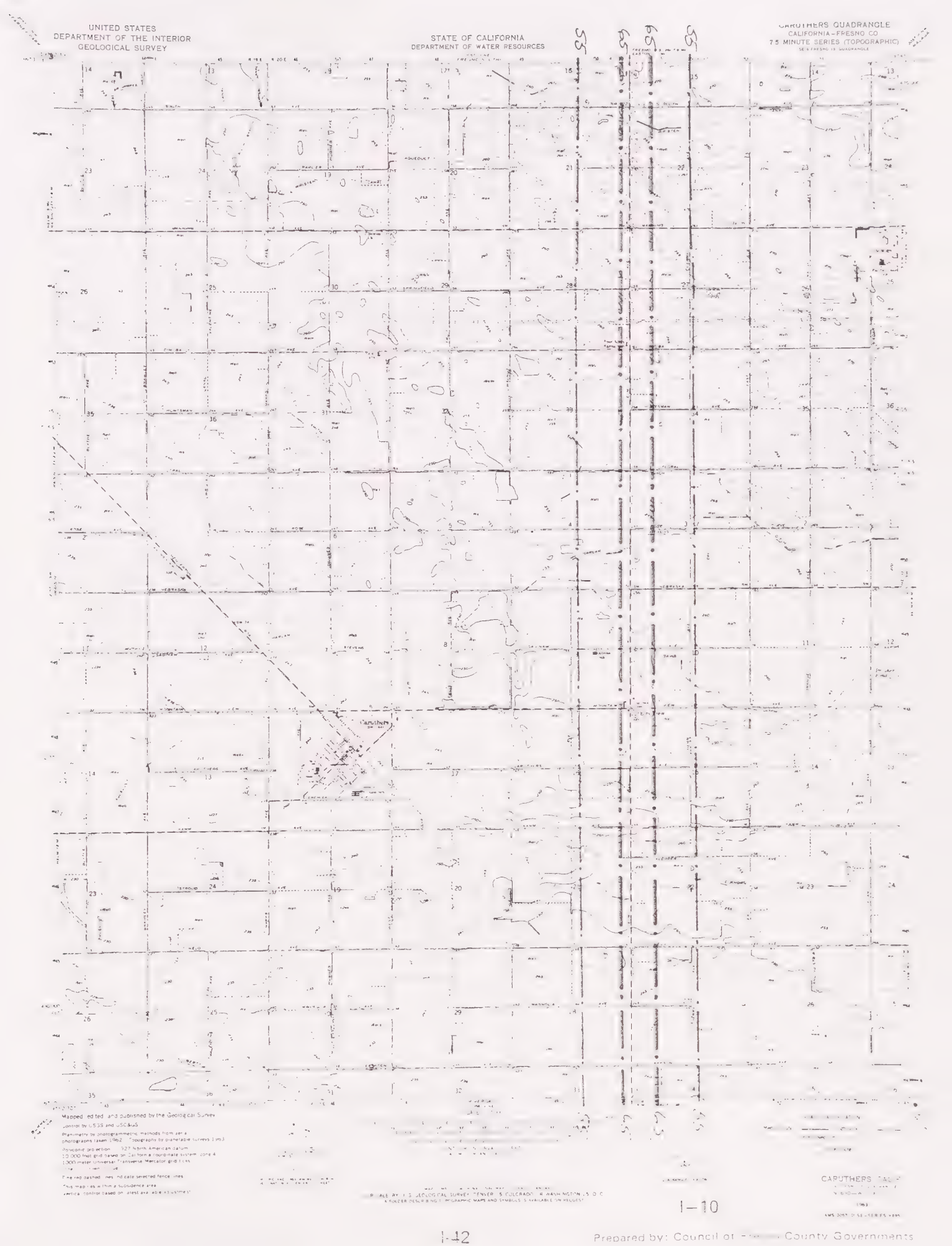

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
LEVIS QUADRA
7.5 MINUTE
Willow Rance



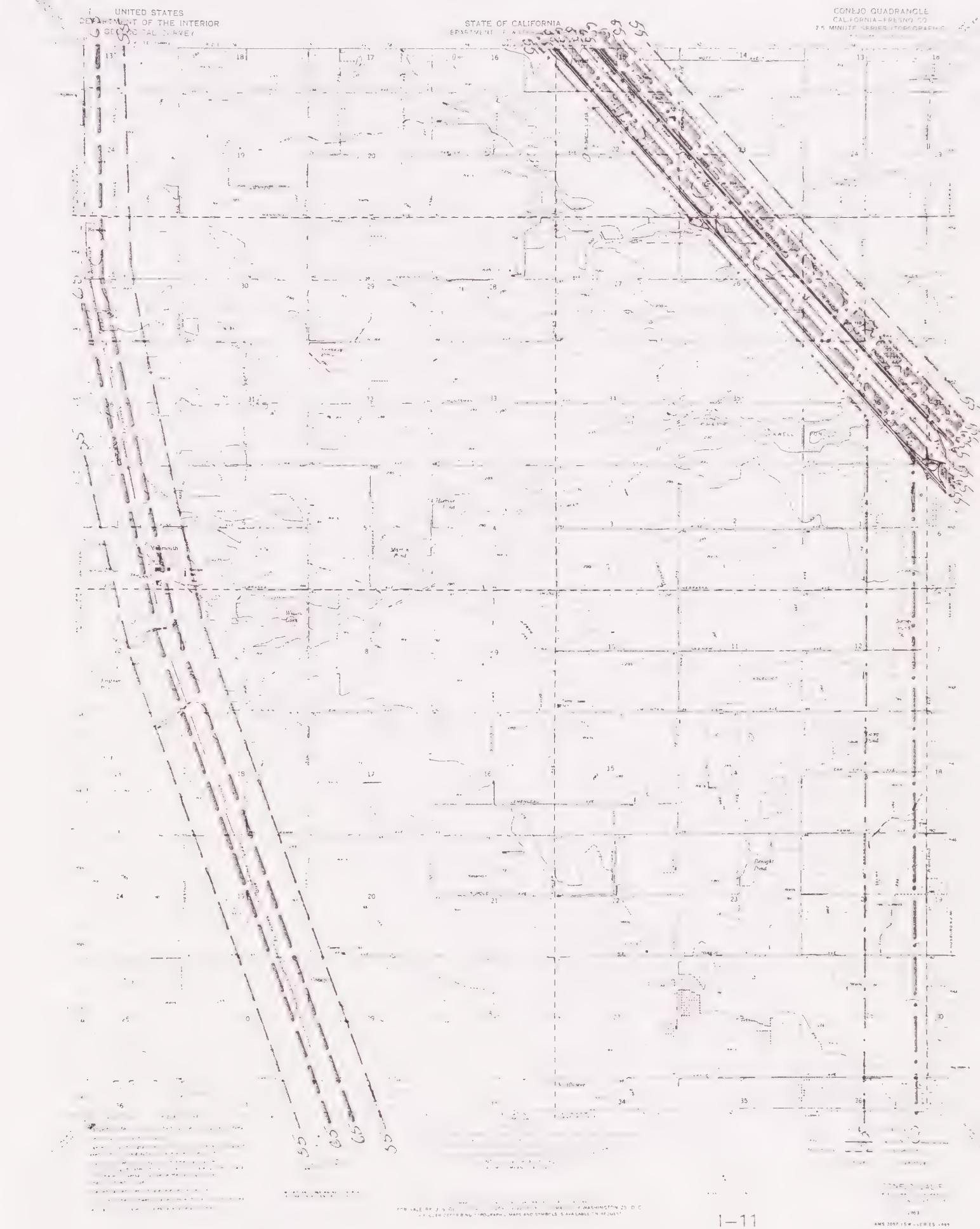
Prepared by Council of Fresno County Governments


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
HELM QUADRANGLE
CALIFORNIA—FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Planimetry by photogrammetric methods from aerial photographs taken 1962
Topography by plane table surveys 1963
Polyconic projection. 1927 North American datum
10,000 foot grid based on California coordinate system, zone 4
1,000 meter Universal Transverse Mercator grid ticks, zone 10, shown in blue
This map lies within a subsidence area
Vertical control based on latest available adjustment
Dotted land lines established by private survey
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Medium duty
Light duty
Unimproved dirt
HELM, CALIF.
SE/4 KERMAN 15 QUADRANGLE
1963
AMS 977 I SE—EDITION 1

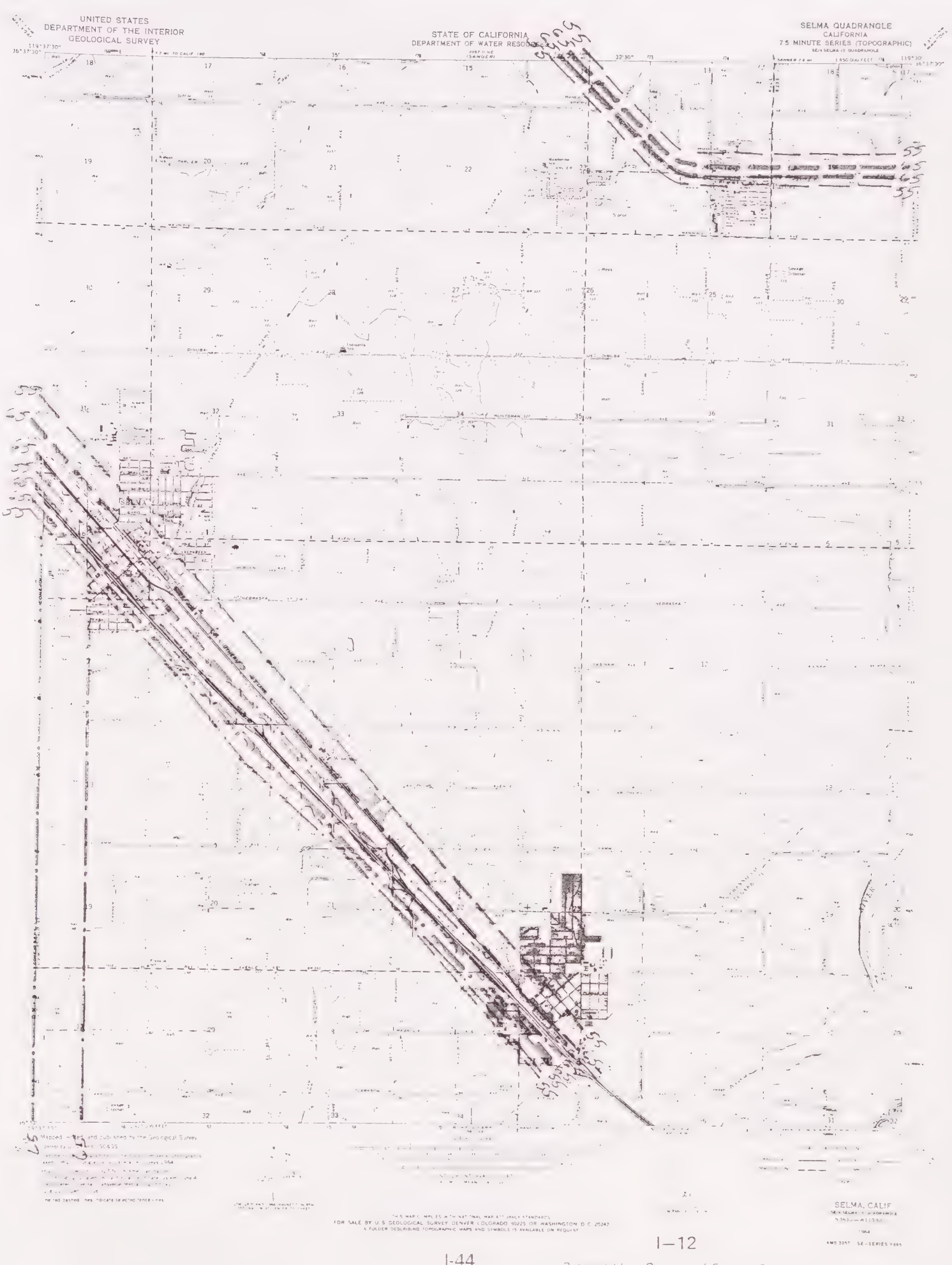
1-8



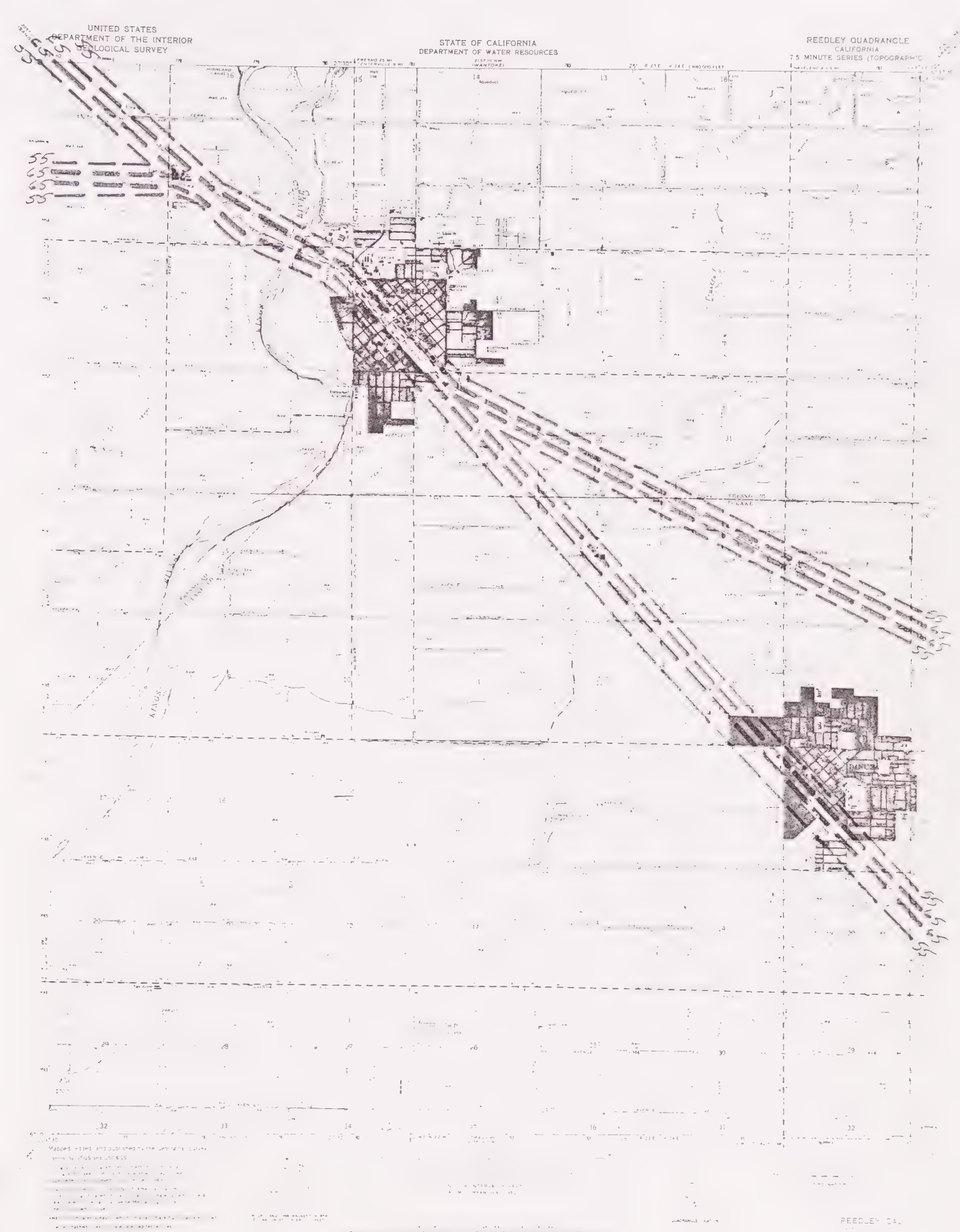
Prepared by: Council of [illegible] County Governments

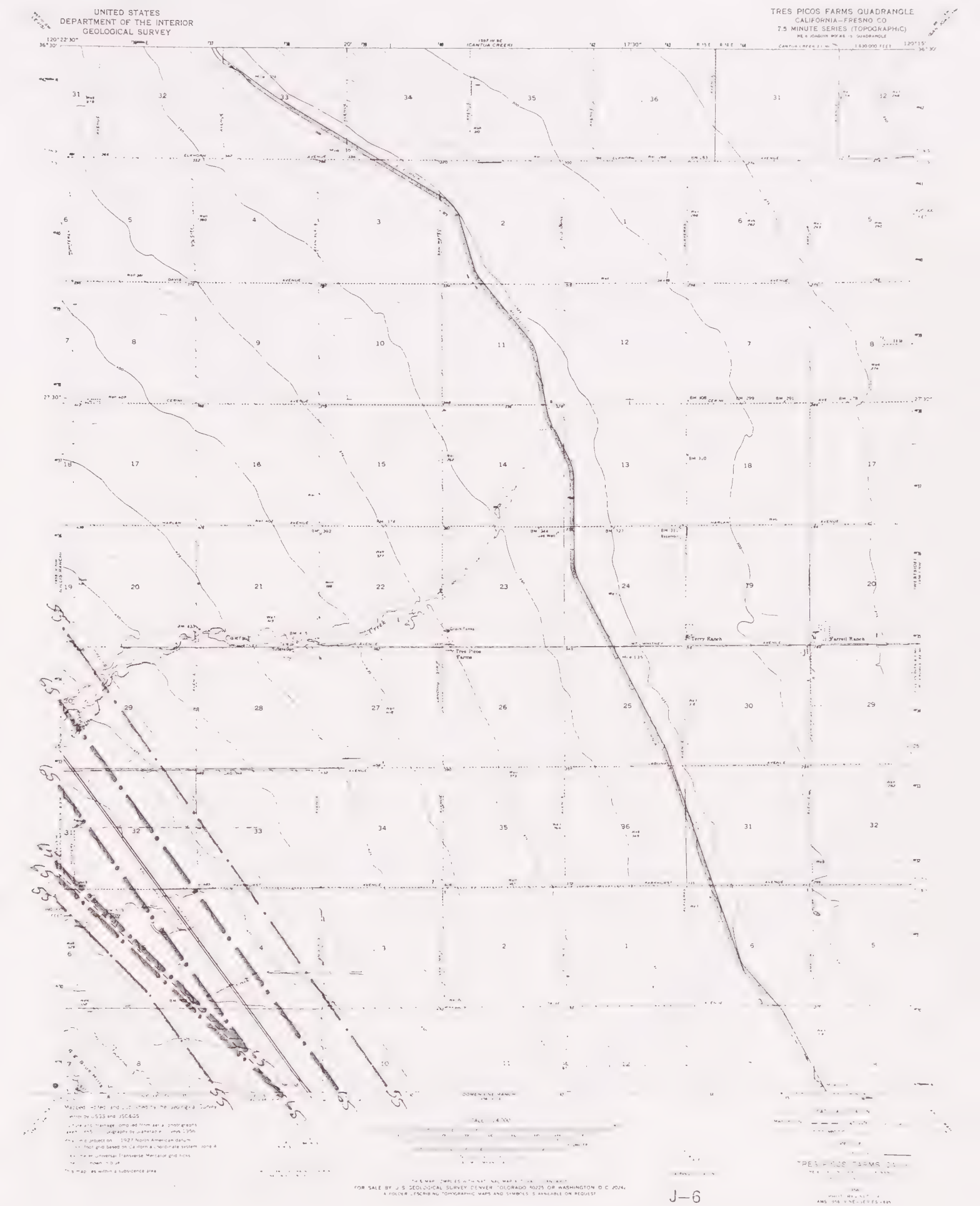


Prepared by: Council of Fresno County Governments

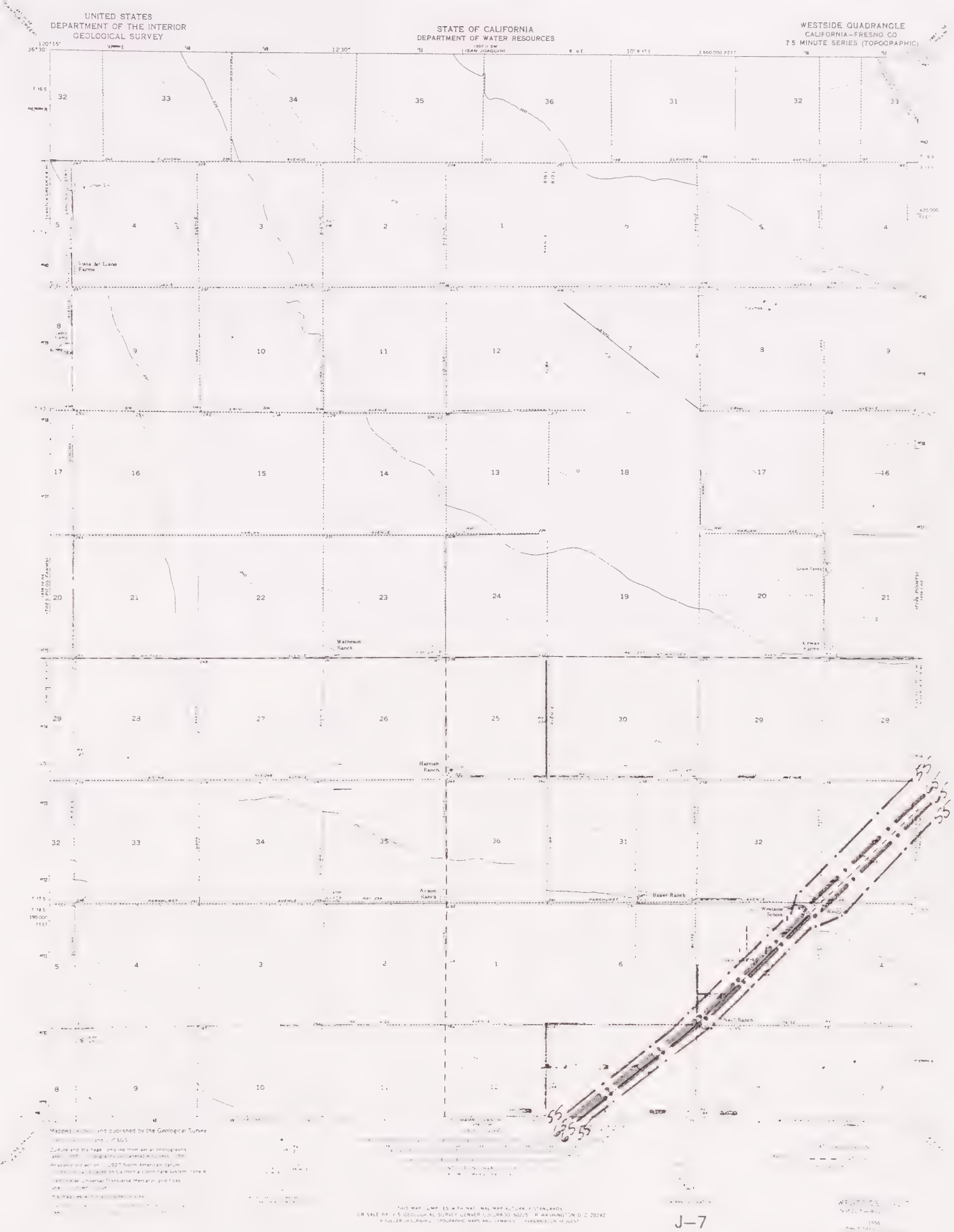


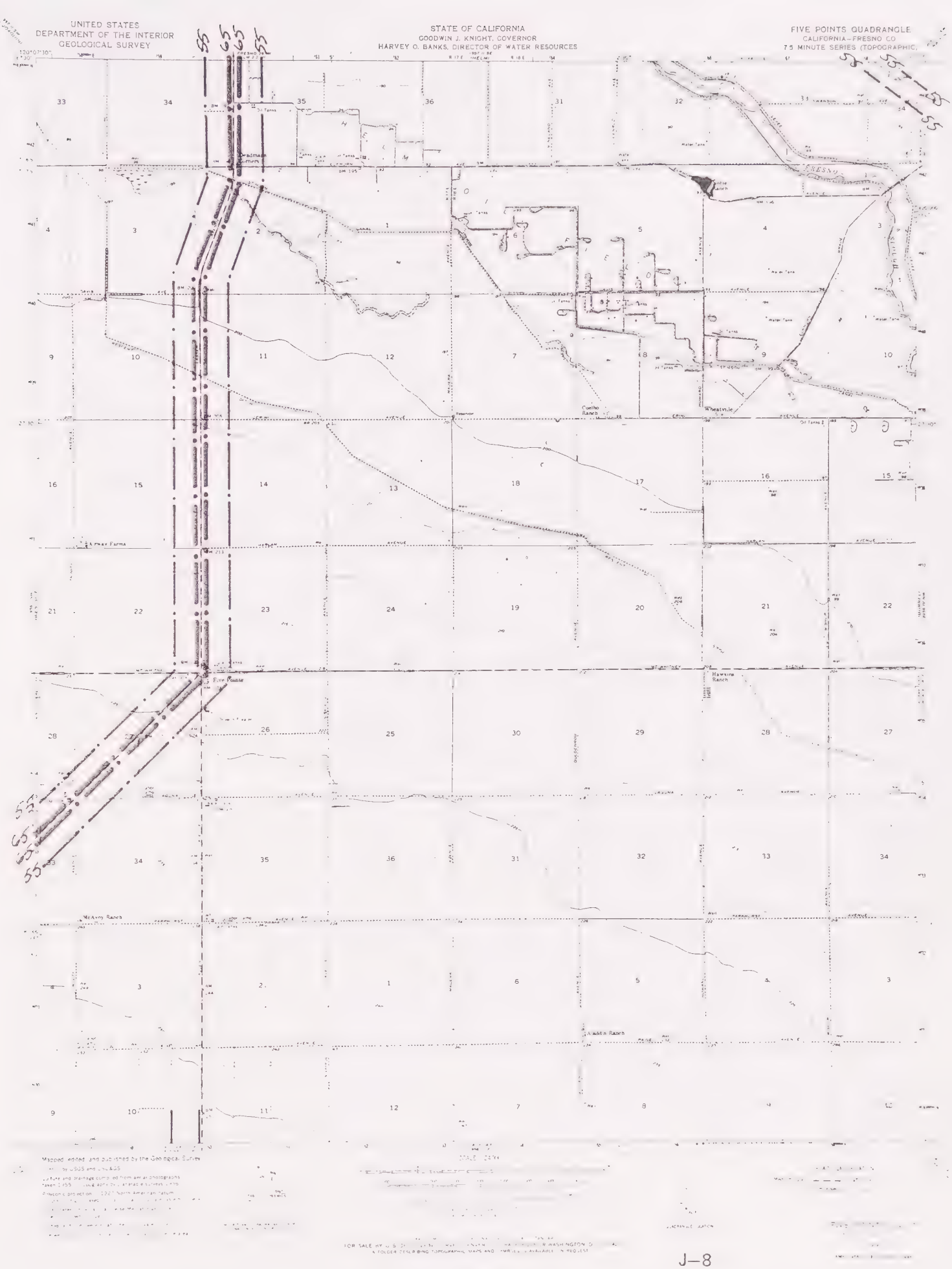
Prepared by: County of Fresno County Governments


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
REEDLEY QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
REEDLEY
REEDLEY, CAL.



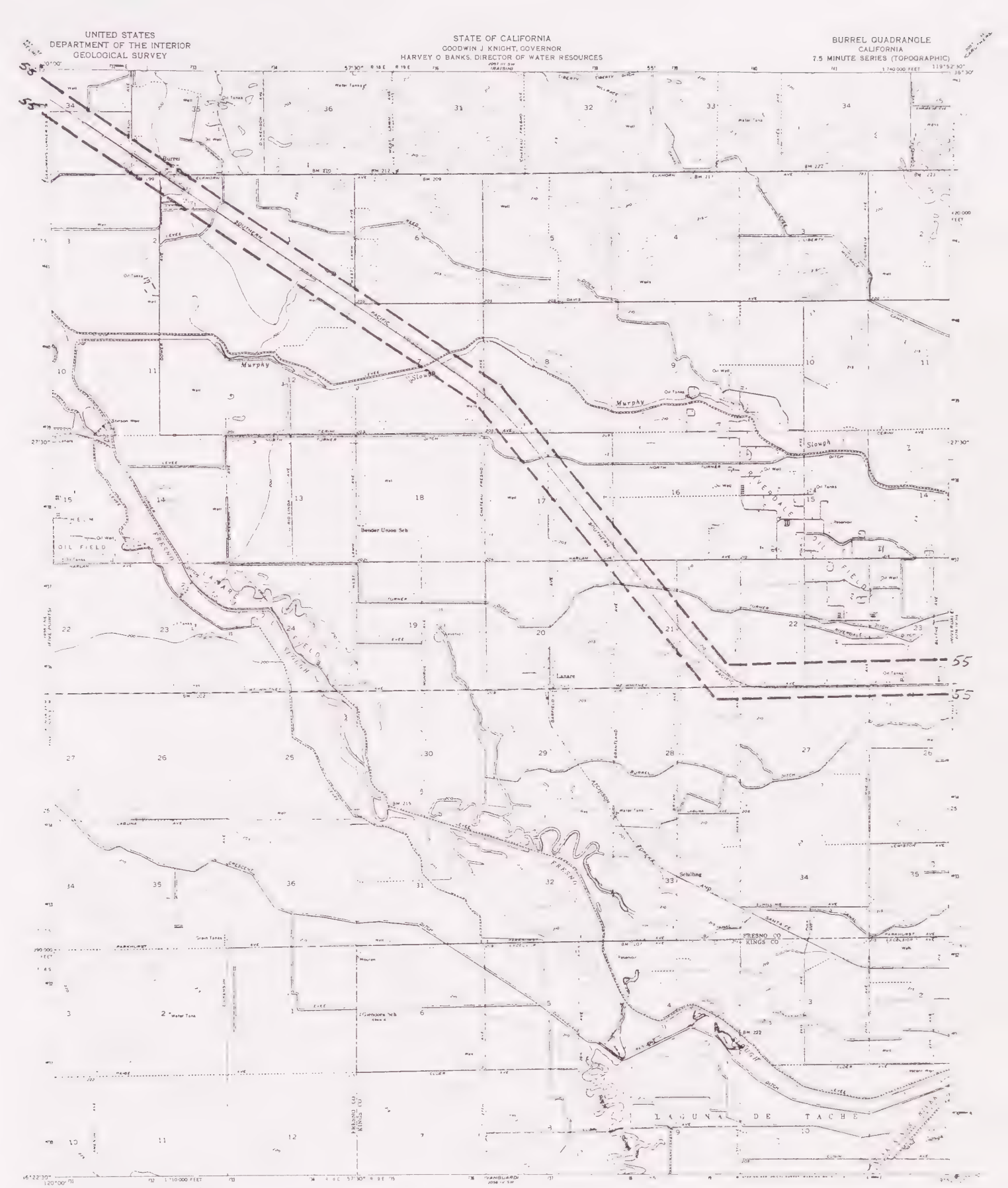
Prepared by: Council of Fresno County Governments


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
WESTSIDE QUADRANGLE
CALIFORNIA—FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
ELKHORN AVENUE
Matheson Ranch
Hamish Ranch
Anson Ranch
Baker Ranch
Westside School
Grave Farms
Mapped, edited, and published by the Geological Survey
Control by USGS
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1956
Horizontal datum 1927 North American datum
Projection and 10,000-foot grid based on California coordinate system, zone 4
Transverse Mercator projection
1000-meter Universal Transverse Mercator grid ticks
Fine red dashed lines indicate selected fence lines
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D.C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

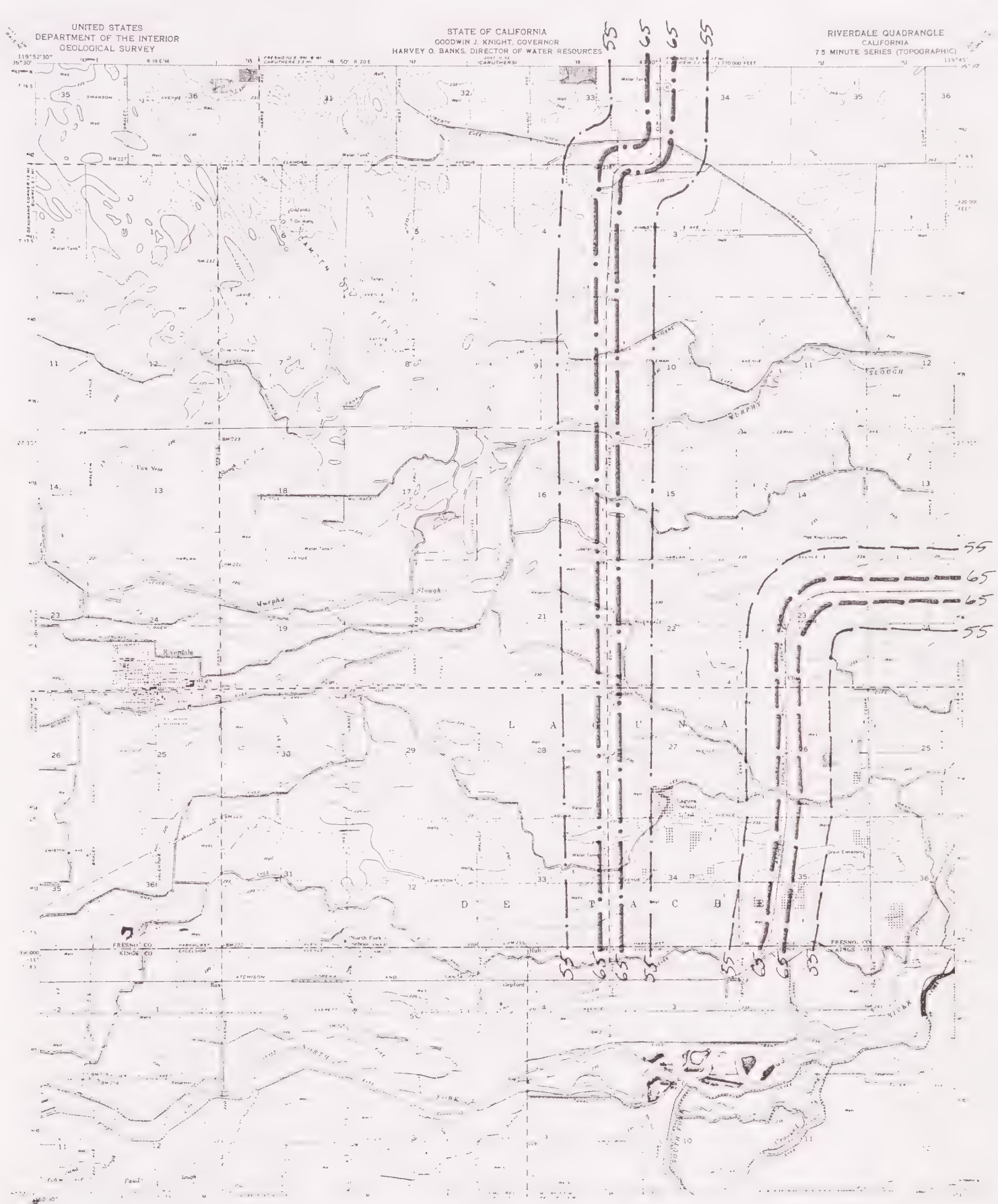


J—8

Prepared by: Council of Fresno County Governments


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
GOODWIN J KNIGHT, GOVERNOR
HARVEY O BANKS, DIRECTOR OF WATER RESOURCES
BURREL QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
Burrel
Murphy
Slough
Bender Union Sch
OIL FIELD
Lanare
Schilling
Glendora Sch
FRESNO CO
KINGS CO
LAGUNA DE TACHE
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Topography by planetable surveys 1924
Culture and drainage revised from aerial photographs taken 1950
Field check and partial contour revision 1954
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 4
1,000-meter Universal Transverse Mercator grid ticks,
zone 11, shown in blue
Dotted land lines were established by private surveys
SCALE 1:24000
CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL
ROAD CLASSIFICATION
Medium-duty
Unimproved dirt
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
QUADRANGLE LOCATION
BURREL, CALIF.
N3622.5—W11952.5/7.5
1954
AMS 3096 IV NW—SERIES V896

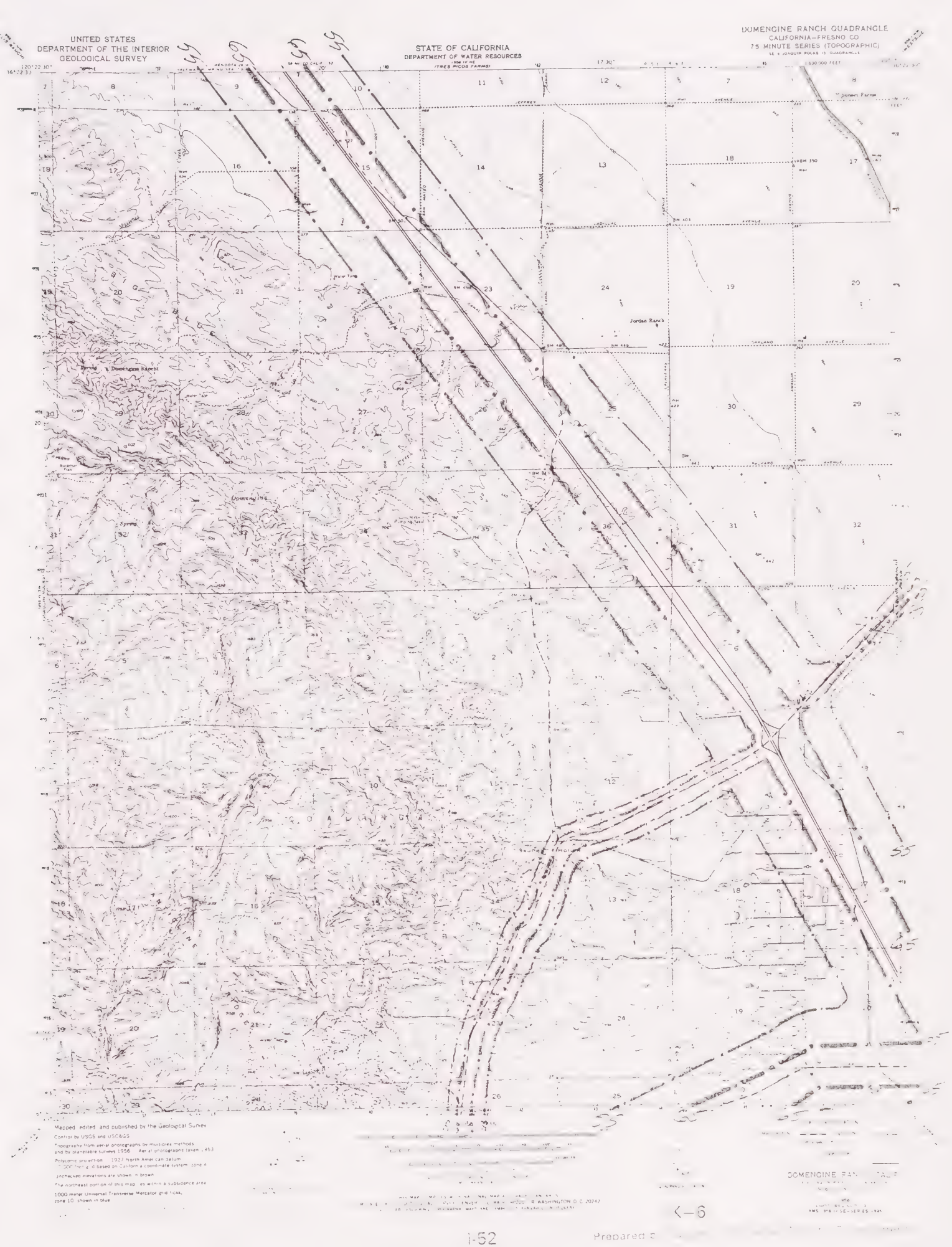
J—9

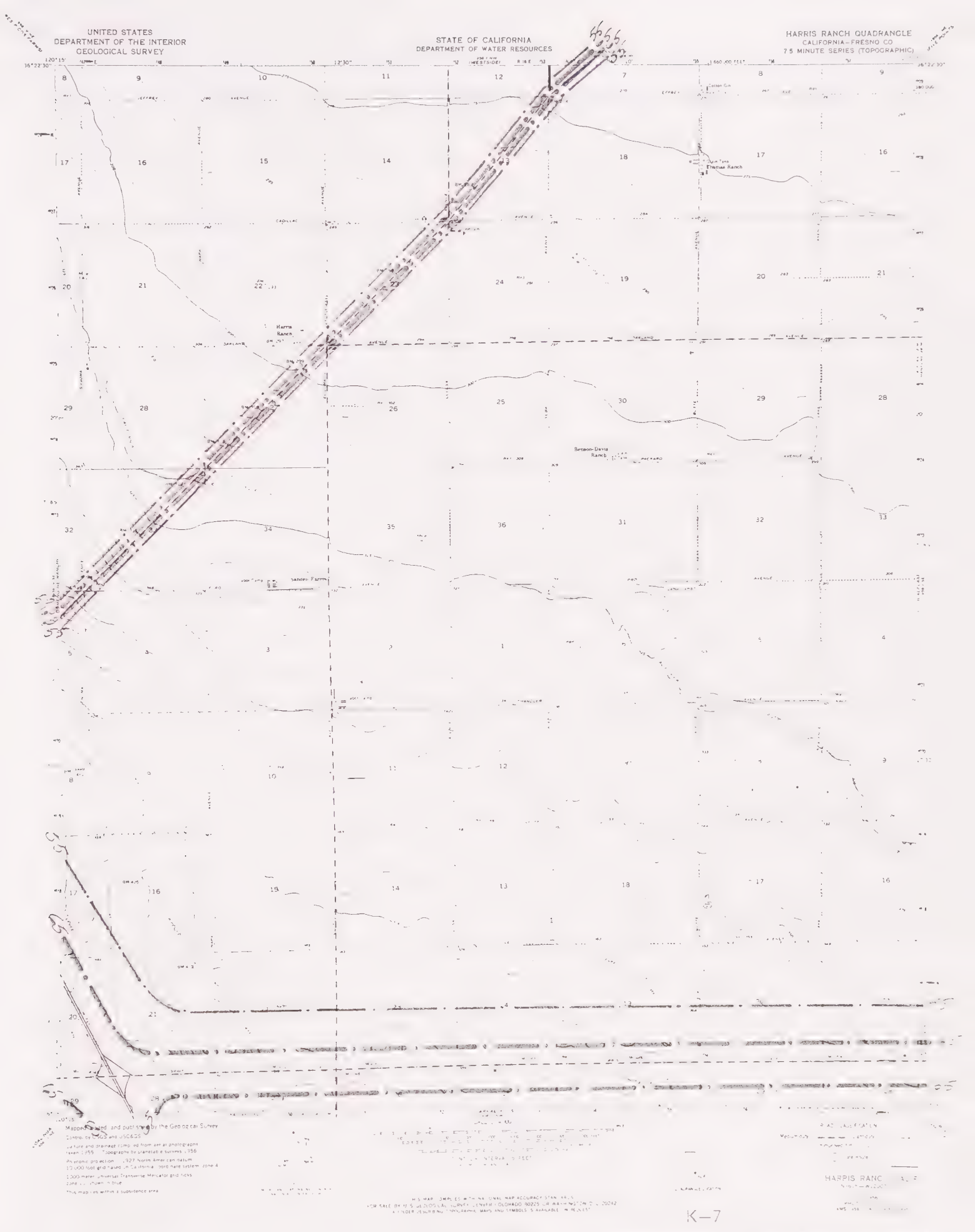


J—10

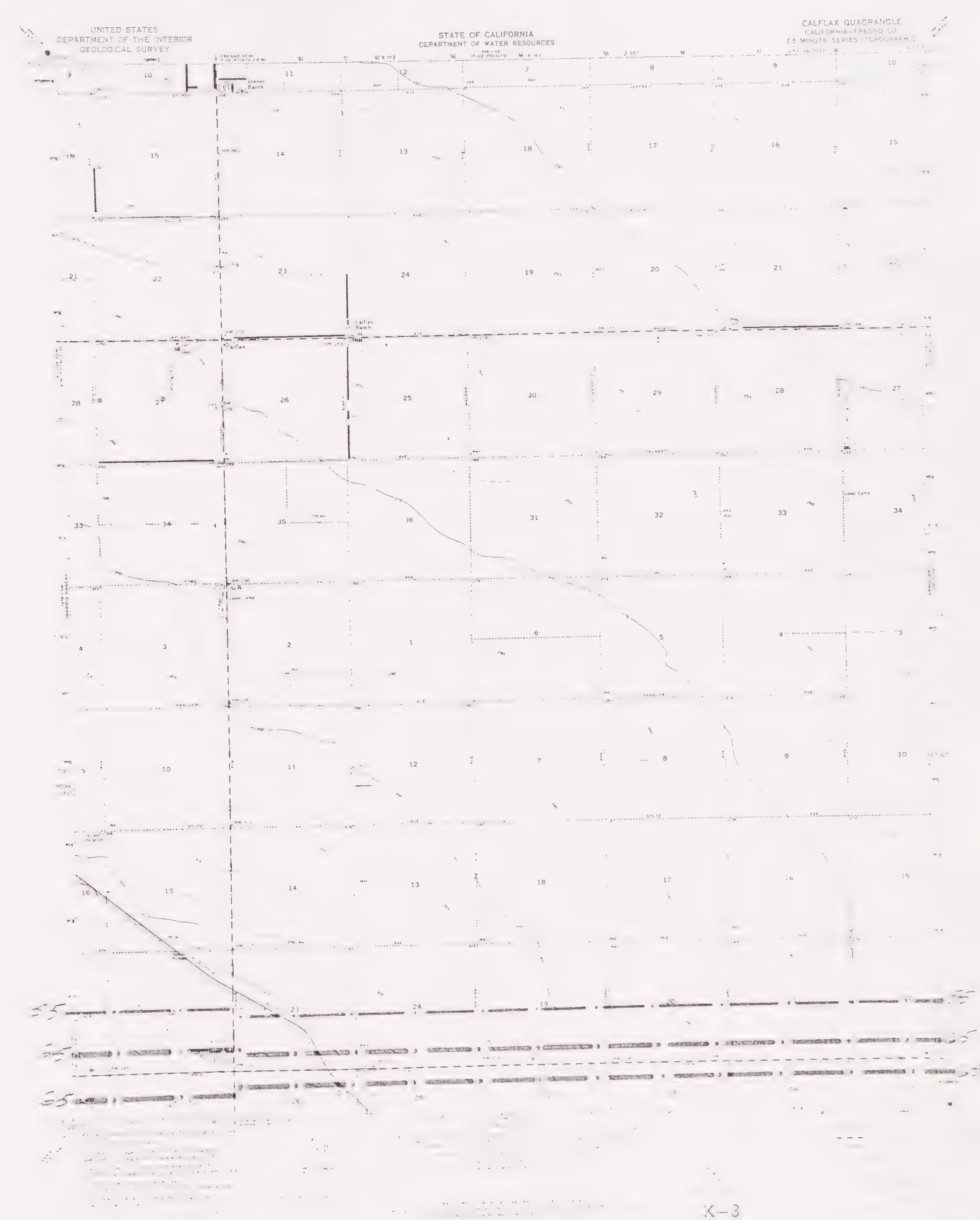
I-51

Prepared by: Council of Fresno County Governments

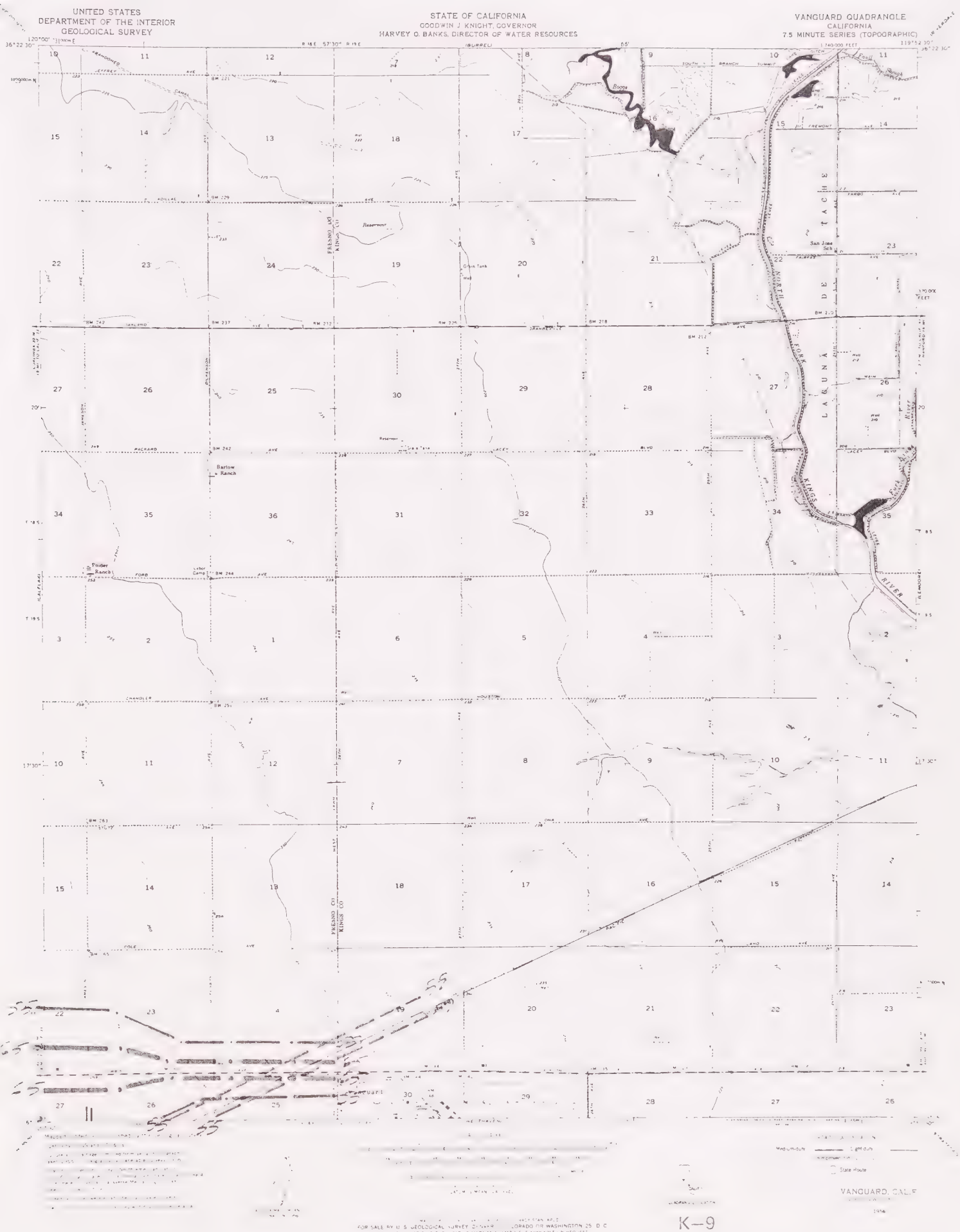

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DOMENGINE RANCH QUADRANGLE
CALIFORNIA—FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
Jordan Ranch
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by multiplex methods
and by planetable surveys 1956
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 4
Unchecked elevations are shown in brown
The northeast portion of this map is within a subsidence area
1000-meter Universal Transverse Mercator grid ticks,
zone 10, shown in blue


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
HARRIS RANCH QUADRANGLE
CALIFORNIA—FRESNO CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
Harris Ranch
Thomas Ranch
Berrenda-Davis Ranch
Sanders Farms
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography by planetable surveys, 1956
1927 North American datum
10,000 foot grid based on California coordinate system, zone 4
1000-meter Universal Transverse Mercator grid ticks
Zone boundary shown thus
This map lies within a subsidence area
HARRIS RANCH QUADRANGLE

K—7



Prepared by: C


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
GOODWIN J. KNIGHT, GOVERNOR
HARVEY O. BANKS, DIRECTOR OF WATER RESOURCES
VANGUARD QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
FRESNO CO
KINGS CO
LAGUNA DE TACHE
NORTH FORK
KINGS RIVER
Barlow Ranch
Polder Ranch
FRESNO CO
KINGS CO
VANGUARD, CALIF.

K–9

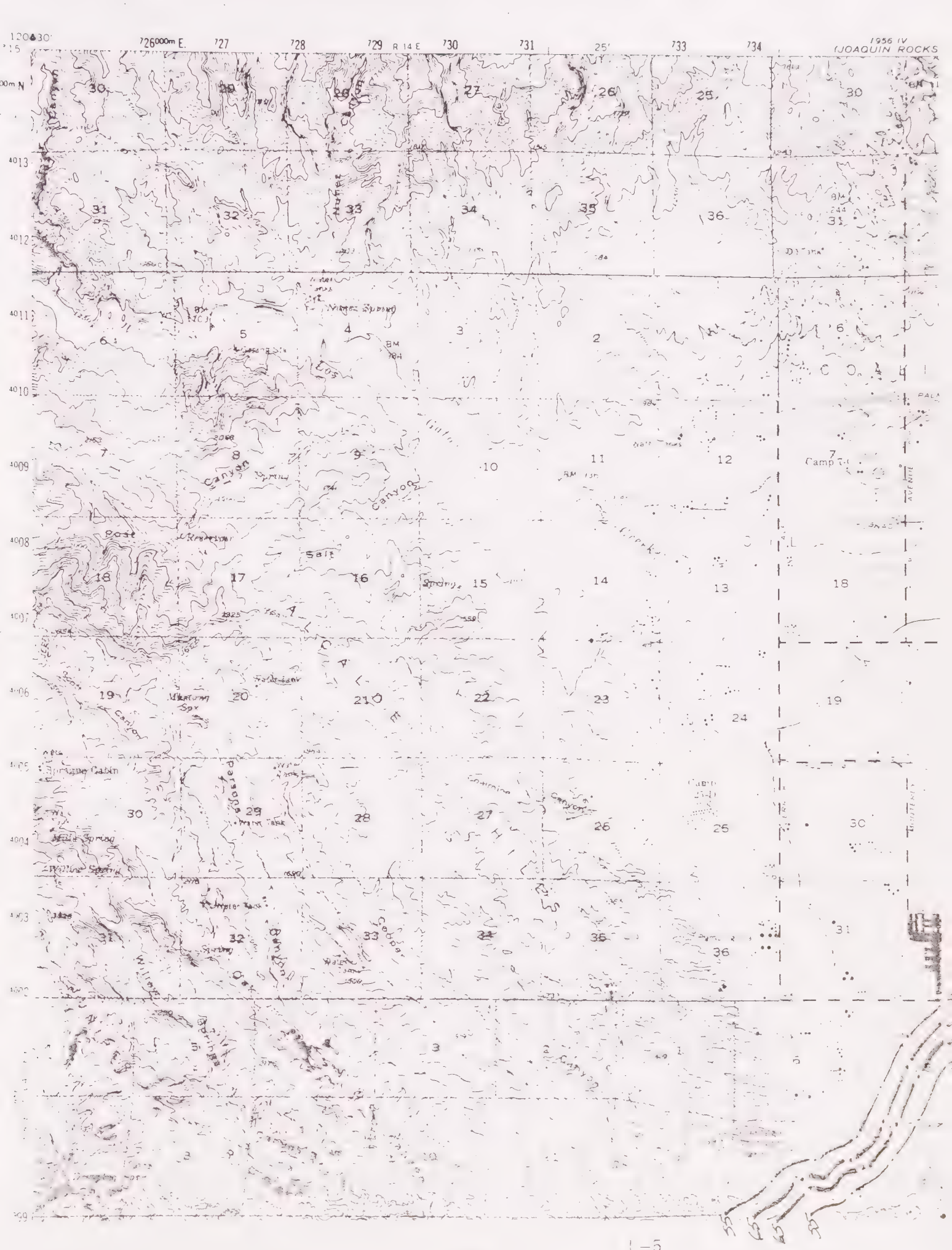
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
PRIEST VALLEY QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
PRIEST VALLEY, CALIF.
PRIEST
VALLEY
SAN LORENZO
(RAYGALL)
MUSTANG
RIDGE
SAN ANDREAS RIFT ZONE
Lewis Creek
Little Bear Canyon
Twin Peaks
Roper Canyon
Reef Trap Spring
Miranda Lake
Chalone
Fresno
Monterey
San Benito
FOR SALE BY U.S. GEOLOGICAL SURVEY DENVER COLORADO 80225 OR WASHINGTON D.C. 20242
L-3
I-56
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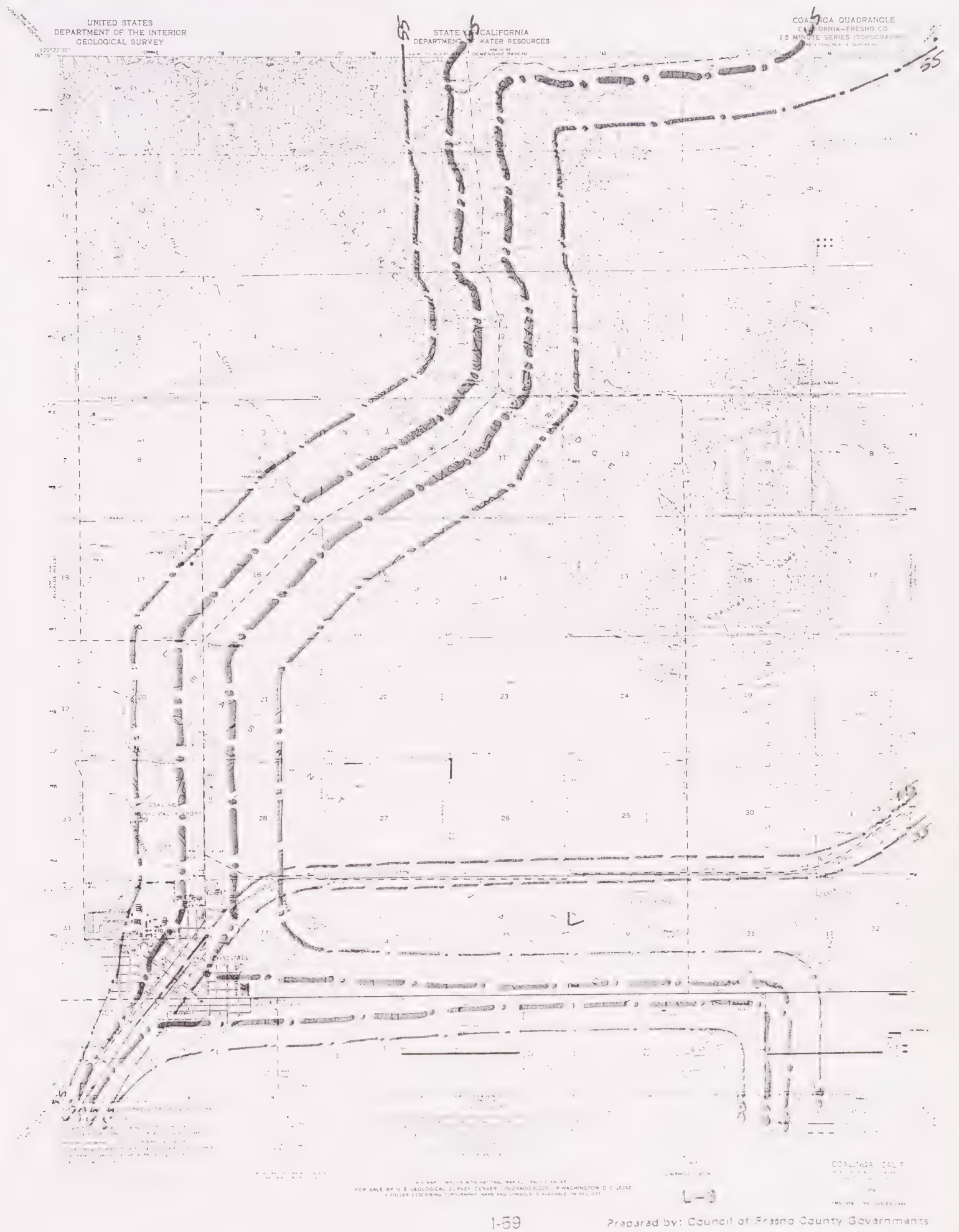
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PRIEST VALLEY QUADRANGLE
CALIFORNIA
15 MINUTE SERIES (TOPOGRAPHIC)

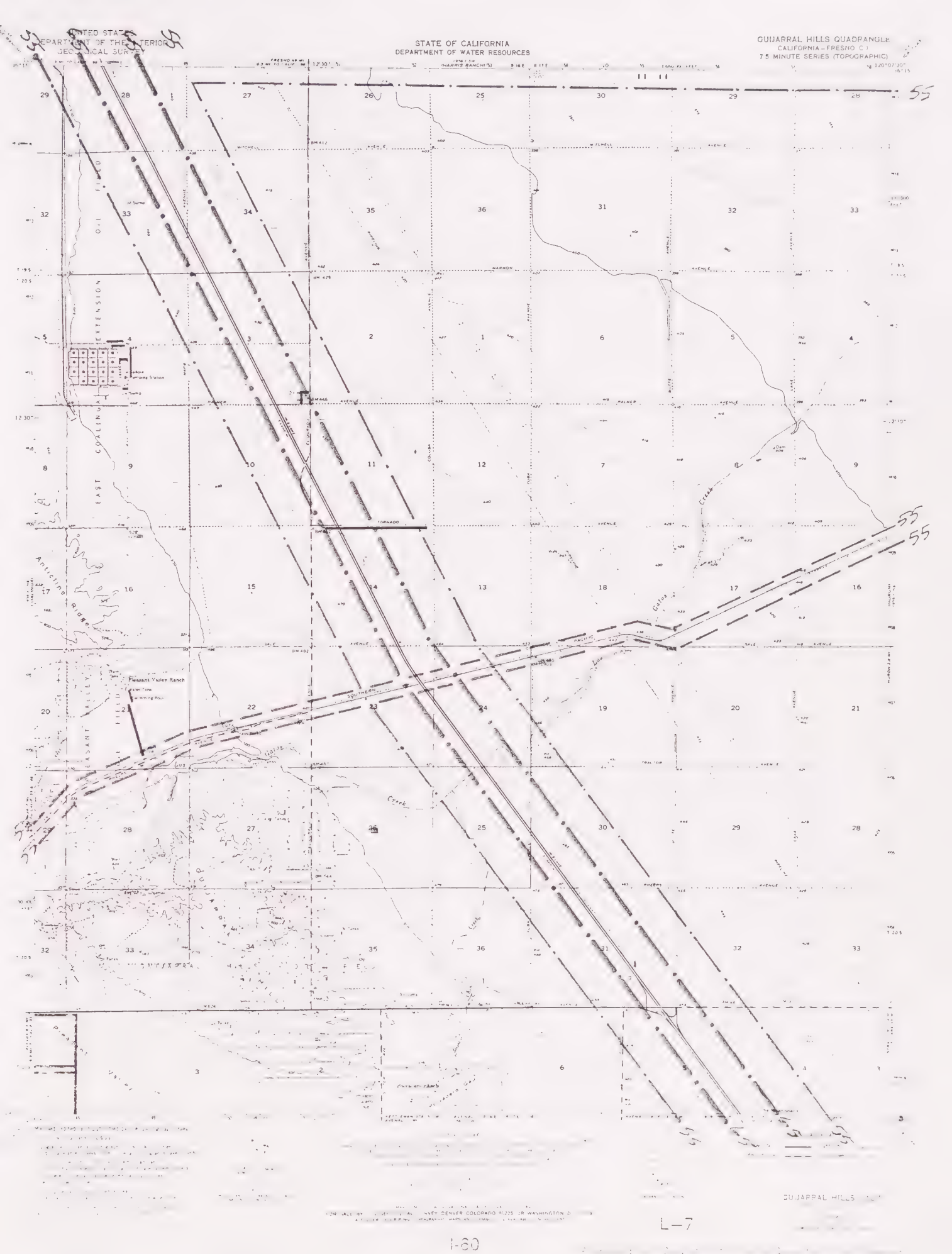


L-1


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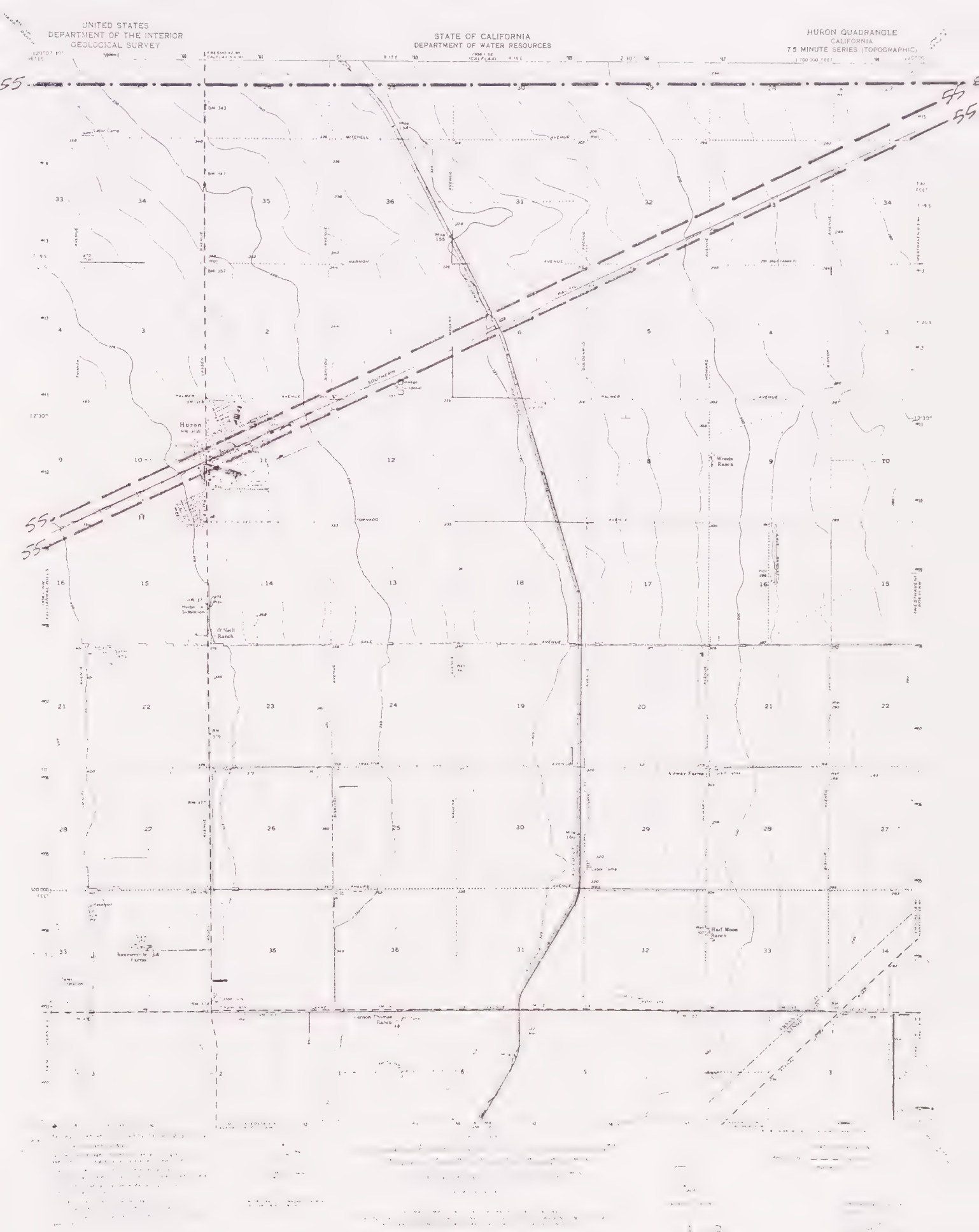

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
COALINGA QUADRANGLE
CALIFORNIA—FRESNO CO
7.5 MINUTE SERIES (TOPOGRA
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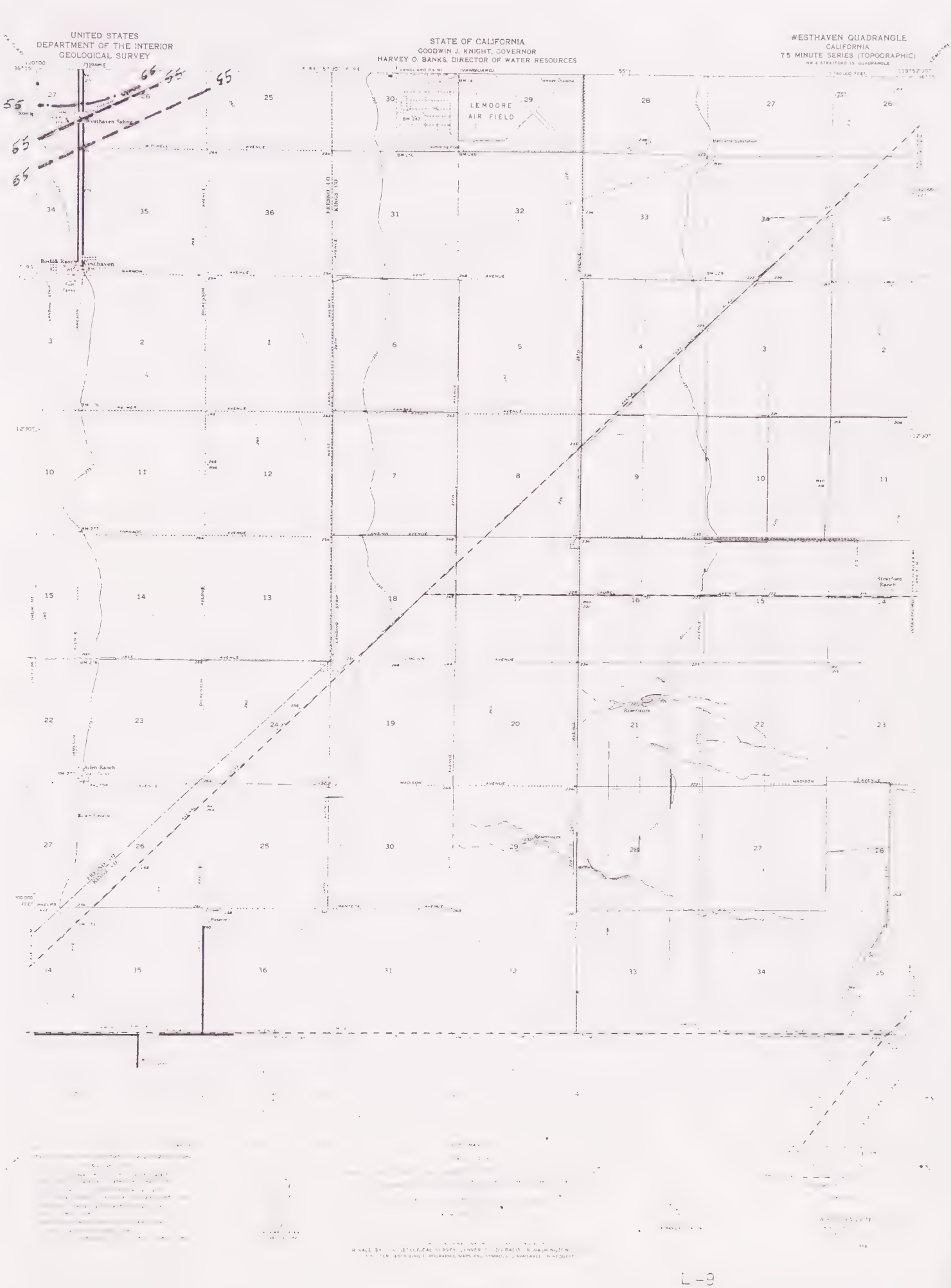
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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
GUIJARRAL HILLS QUADRANGLE
CALIFORNIA—FRESNO CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
EAST COALINGA EXTENSION OIL FIELD
Anticline Ridge
Pleasant Valley Ranch
Tornado
Gates
Creek
SOUTHERN PACIFIC
GUIJARRAL HILLS

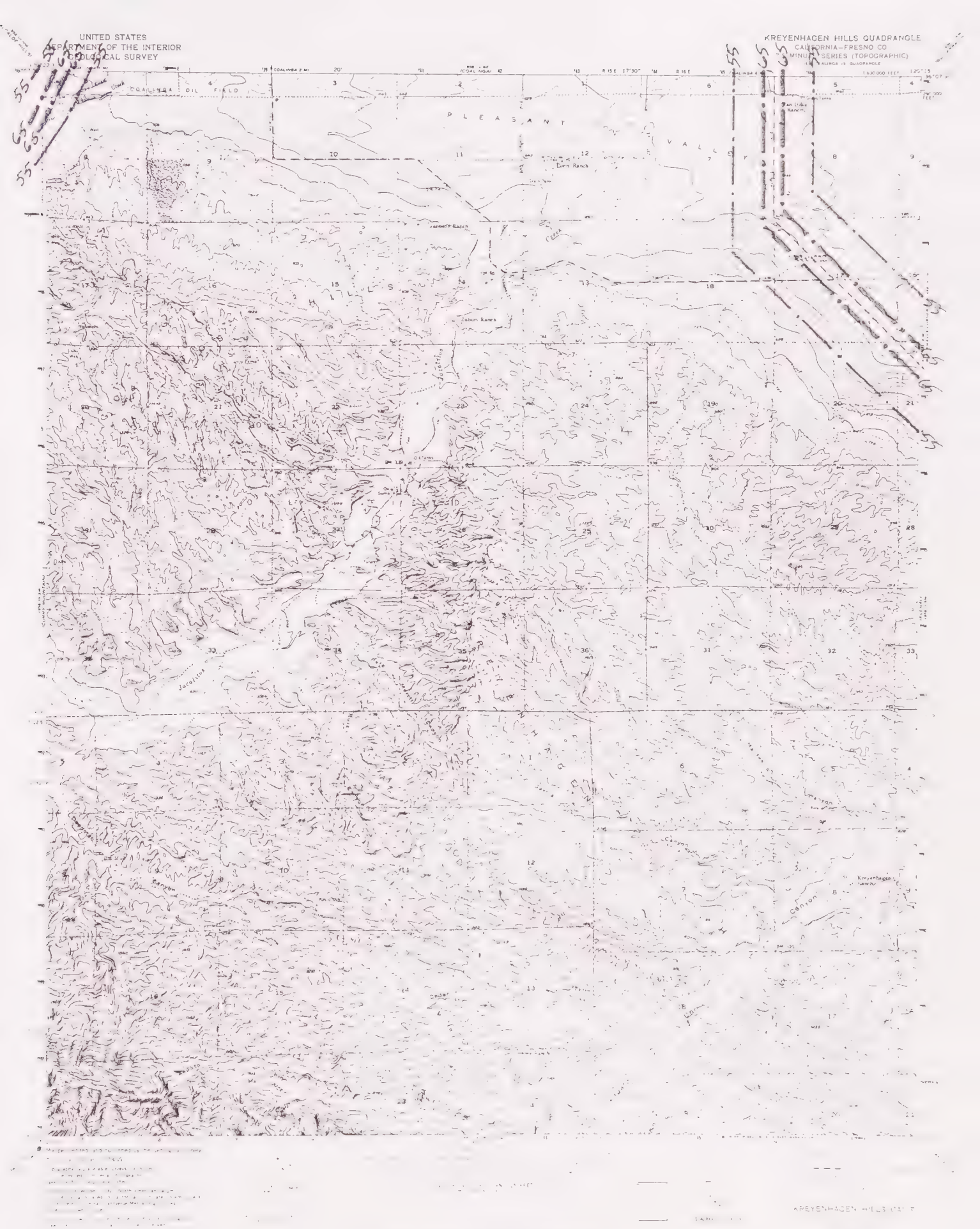
L—7

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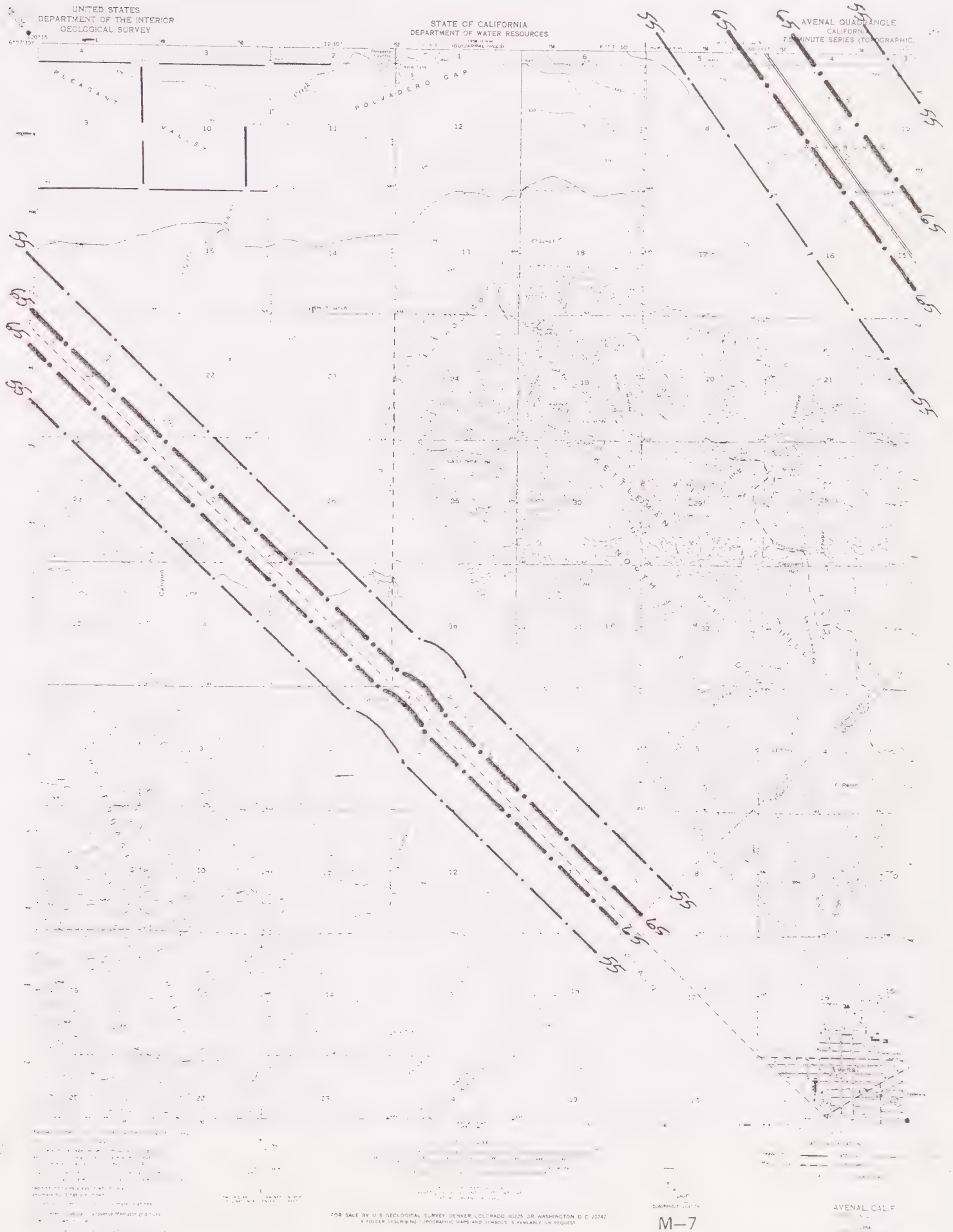

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
HURON QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
55
Huron
Wrede Ranch
O'Neill Ranch
Half Moon Ranch
SOUTHERN PACIFIC
AVENUE


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
GOODWIN J. KNIGHT, GOVERNOR
HARVEY O. BANKS, DIRECTOR OF WATER RESOURCES
WESTHAVEN QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
LEMOORE
AIR FIELD
Westhaven Subst.
Burtis Ranch
Westhaven
Allen Ranch
Stratford
Ranch
FRESNO CO.
KINGS CO.
AVENUE
MADISON
LAKESIDE


Drippings Spr.
Canyon
Sandstone
Middle Ranch
Jack Springs
Jacalitas Ranch
Water Tank
Ranch
Dias Canyon
Spring
Fields
Ranch
PARKER 24000
PARKER



Prepared by: Council of Fresno County Governments


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
AVENAL QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
POLVADERO GAP
PLEASANT VALLEY
KETTLEMAN NORTH
Avenal
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D.C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
AVENAL, CALIF.

M—7


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
LA CIMA QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography by photogrammetric methods from aerial photographs taken 1958 and 1962 and by planetable surveys 1963
Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zone 4
1000-meter Universal Transverse Mercator grid ticks, zone 10, shown in blue
Medium-heavy duty road, all weather, hard surface
Light-duty road, all weather, unimproved surface
Trail
Dashed red lines indicate selected fence lines
North half of this map is within a subsidence area; vertical control based on latest area-wide adjustment
Revisions shown in purple (1971) compiled from aerial photographs taken 1971. This information not field checked
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
ROAD CLASSIFICATION
Primary highway
Secondary highway
Interstate Route
LA CIMA, CALIF.
N3600—W11500/7.5
1963
PHOTOREVISED 1971
AMS 6954 I SE-SERIES V895

M—8

APPENDIX J
NOISE LEVEL CONTOU
LINE DISTANCES
FROM SOURCES

ROUTE 99

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road 80	75	70	65	60	55	50	45
Kingsburg	0.00	100	140	210	310	500	900	1500	2300
Jct. Rte. 201	0.46			155	240	360	600	1050	1700
Conejo Avenue (Kingsburg)	0.94			155	240	360	600	1050	1700
Bethel Avenue	2.04	110	130	140	175	250	390	650	1150
Mtn. View Ave.	3.74	110	145	230	360	560	1000	1600	2400
McCall Avenue	4.94		90	175	260	400	650	1150	1800
2nd St. (Selma)	5.82		90	175	260	400	650	1150	1800
Rose Avenue	5.77		90	175	260	400	650	1150	1800
Highland Avenue	6.43		90	175	260	400	650	1150	1800
Floral Avenue	6.51		90	175	260	400	650	1150	1800
Manning Avenue	9.15	110	145	230	360	560	1000	1600	2400
Merced Street (Fowler)	11.10		90	175	260	400	650	1150	1800
Adams Avenue	11.80	110	145	230	360	560	1000	1600	2400
Clovis Avenue	12.40		90	175	260	400	650	1150	1850
American Avenue	14.50	110	145	230	360	560	1000	1600	2400
Chestnut Avenue	15.49	110	145	230	360	560	1000	1600	2400
Central Avenue	15.86	110	145	230	360	560	1000	1600	2400
Cedar Avenue	16.48	110	145	230	360	560	1000	1600	2400
North Avenue	17.26	110	145	230	360	560	1000	1600	2400
Jensen Avenue	18.66		125	190	280	460	800	1350	2100
Broadway Van Ness Connection (Fresno)	19.00	115	130	140	155	220	330	560	1000
Ventura Street (Fresno)	20.00	115	130	140	155	220	330	560	1000
Fresno Street (Fresno)	20.00	115	130	140	155	220	330	560	1000
Jct. Rte. 180 (Fresno)	21.00	115	130	140	155	220	330	560	1000
Tehama Street (Fresno)	21.75	125	140	155	170	200	320	560	1000
Nielsen Avenue (Fresno)	22.13		90	175	260	400	650	1150	1800
Pacific Avenue (Fresno)	22.39	125	140	155	170	200	320	560	1000
Belmont Avenue (Fresno)	22.74	125	140	155	170	200	320	560	1000
	23.02	110	145	230	360	560	1000	1600	2400
Olive Avenue (Fresno)	23.32	125	140	155	170	200	320	560	1000
McKinley Avenue (Fresno)	23.85		90	175	260	400	650	1150	1800
Clinton Avenue (Fresno)	24.40	110	145	230	360	560	1000	1600	2400
Dakota Avenue (Fresno)	26.22	115	135	145	185	270	450	800	1350

ROUTE 99

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road 80	75	70	65	60	55	50	45
Ashlan Avenue (Fresno)	26.55	125	140	155	170	200	320	560	1000
Shaw Avenue (Fresno)	28.10	125	140	155	170	200	320	560	1000
Herndon Canal	28.40	110	145	230	360	560	1000	1600	2400
Grantland Avenue	30.48		90	175	260	400	650	1150	1800
Herndon Avenue	30.60	125	140	155	170	200	320	560	1000
San Joaquin River	31.60	125	140	155	170	200	320	560	1000

ROUTE 15

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road 80	75	70	65	60	55	50	45
Kings/Fresno County Line	0.00	75	260	800	1000+		2,960		
Lassen Interchange	0.23	75	260	800	1000+		2,960		
Jayne Avenue	5.50	73	240	700	1000+		2,960		
Jct. Rte. 198	14.87	73	240	700	1000+		2,960		
Jct. Rte. 33 South	17.96	86	280	730	1000+		2,960		
Jct. Rte. 33 North	29.95	75	250	720	1000+		2,960		
Kamm Avenue	38.36	75	250	720	1000+		2,960		
Manning Avenue	45.80	75	250	720	1000+		2,960		
Panoche Road	49.14	75	250	720	1000+		2,960		
Russell Avenue	52.75	75	250	720	1000+		2,960		
Shields Avenue	60.08	75	250	720	1000+		2,960		
Nees Avenue	65.78	75	250	720	1000+		2,960		
Fresno/Merced County Line	66.16	86	280	730	1000+		2,960		

ROUTE 41

DESCRIPTION	Post Mile	Distance to Noise Levels dB(A), in feet from Road 80	75	70	65	60	55	50	45
Excelsior Avenue Interchange	0.00	16	47	140	408	1000+	1670		
Mt. Whitney Ave.	2.08	17	54	150	450	925	1000+		
Mt. View Avenue	6.19	22	70	200	560	1000+	2190		
Mt. View Avenue	7.11	28	80	204	700	1000+	2400		
Manning Avenue	11.00	28	80	320	650	1000+	2300		
Jefferson Avenue (Easton)	18.50	38	110	250	880	1000+	2700		
North Avenue	21.00	32	100	300	900	1000+	2800		
Jensen Ave. (Fresno)	22.00	62	205	600	1000+		2960		
California Avenue (Fresno)	23.00	64	215	625	1000+		2960		
Ventura & "C" (Fresno)	23.26	61	200	550	1000+		2960		
Ventura & "C" (Fresno)	23.26	70	240	750	1000+		2960		
Jct. Rt. 99 (Fresno)	23.32	90	310	800	1000+		2960		
"G" St. (Fresno)	23.55	76	280	815	1000+		2960		
Broadway (Frenso)	23.76	83	260	800	1000+		2960		
Van Ness (Fresno)	23.91	91	300	850	1000+		2960		
Jct. Rte. 180 & "O" & Ventura (Fresno)	24.00	100	300	830	1000+		2960		
Jct. Rte. 180 & Blackstone & Stanislaus	24.05	155	450	1000			2960		
Divisadero St. (Fresno)	24.26	100	345	1000	1000+		2960		
Olive Ave. (Fresno)	25.22	90	290	900	1000+		2960		
McKinley Ave. (Fresno)	25.75	70	250	700	1000+		2960		
Shields Avenue (Fresno)	26.75	87	295	850	1000+		2960		
Dakota Avenue (Fresno)	27.25	80	255	720	1000+		2960		
Ashlan Avenue (Fresno)	27.75	70	240	650	1000+		2960		
Shaw Avenue (Fresno)	27.75	70	240	650	1000+		2960		
Barstow Avenue (Fresno)	29.94	80	275	800	1000+		2960		
Barstow Avenue (Fresno)	29.94	70	195	550	1000+		2960		
Bullard Avenue (Fresno)	29.74	70	180	625	1000+		2960		
Herndon Avenue (Pinedale)	30.74	71	200	550	1000+		2960		
Herndon Avenue (Pinedale)	30.74	30	91	270	1000+		2960		
San Joaquin River	33.45	60	200	600	1000+		2960		

ROUTE 168

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road							
		80	75	70	65	60	55	50	45
Blackstone Avenue	0.00	45	150	450	1000+		2960		
First Street	0.99	40	120	350	1000+	1000+	2960		
Cedar Avenue	2.00	25	85	240	700	1000+	2960		
Maple Avenue	2.51	40	120	350	1000	1000+	9260		
Winery Avenue	3.26	50	150	400	1000+		2960		
Peach Avenue	4.00	60	200	550	1000+		2960		
Clovis Avenue	5.00	50	150	400	1000+		2960		
Clovis Avenue	5.00	45	140	400	1000+		2960		
5th Street	6.07	80	250	650	1000+		2960		
3rd Street	6.25	60	200	550	1000+		2960		
3rd Street	6.25	45	140	400	1000+		2960		
Tollhouse Road	6.81	60	180	500	1000+		2960		
Tollhouse Road	6.81	50	120	350	1000+	1000+	2960		
Herndon Avenue	8.07	25	70	200	600	1000+	2960		
Academy Avenue	15.87		65	200	500	1000+	2000		
Sample/Pittman Hill Road	18.85	25	75	250	700	1000+	2450		
Millerton Road	26.90	30	100	300	850	1000+	2720		
Millerton Road	26.90		30	100	300	850	1000+		
Pittman Road	26.00		35	110	350	900	1000+		
Lodge Road	31.05		35	110	350	900	1000+	1000+	
Auberry Road	39.00		35	35	110	350	950		
Dinkey Creek Road	45.60	45	150	450	1000+		2960		
Dinkey Creek Road	45.60	30	90	300	800	1000+	2670		
Shaver Hts.	47.85	25	85	250	700	1000+	2500		
County Road to (Big Creek)	49.66	20	60	170	550	1000+	2090		
County Road to (Big Creek) Ah.	49.66		25	70	250	700	1000+		
China Peak Resort Road	64.00		25	70	250	700	1000+		
County Road to Florence Lake Road	64/48			15	50	150	450	1000+	

ROUTE 63

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road							
		80	75	70	65	60	55	50	45
Fresno County Line	0.00			30	100	300	900	1000+	
American Avenue	2.50			35	110	320	1000		
Jct. Rte. 180	8.36			30	110	300	1000		

ROUTE 180

DESCRIPTION	Post Mile	Distance to Noise Levels dB(A) in feet from Road							
		80	75	70	65	60	55	50	45
Jct. Rte. 33 Derrick Avenue	23.50	75	250	650	1000+		2960		
7th Street (Mendota)	24.01	90	280	800	1000+		2960		
8th Street (Mendota)	24.10	90	280	800	1000+		2960		
Belmont (Mendota)	24.60	70	200	600	1000+		2960		
Panoche Road	26.20	30	90	250	800	1000+	2610		
James Road	34.59	35	100	300	900	1000+	2800		
James Road	34.59	35	100	300	900	1000+	2800		
Jct. Rte. 145 (Kerman)	42.64	40	120	320	1000	2000	3080		
Jct. Rte. 145 (Kerman)	42.64	20	60	180	500	1000+	2000		
Dickenson Avenue	47.65	30	90	270	800	1000+	2610		
Grantland Avenue	50.60	35	100	290	900	1000+	2800		
Marks Avenue (Fresno)	54.58	38	120	320	1000		2960		
Hughs Avenue (Fresno)	55.73	40	150	370	1000+		2960		
West Avenue (Fresno)	55.59	45	160	400	1000+		2960		
Thorne Avenue (Fresno)	56.65	70	220	600	1000+		2960		
Thorne Avenue (Fresno)	56.65	60	190	530	1000+		2960		
Stanislaus Street (Fresno)	56.01	60	190	530	1000+		2960		
"B" Street (Fresno)	56.40	40	140	380	1000+		2960		
Jct. Rte. 99 (Fresno)	57.11	40	140	380	1000+		2960		
Broadway (Fresno)	57.45	45	150	390	1000+		2960		
Broadway (Fresno)	57.45	60	200	550	1000+		2960		
Van Ness Avenue (Fresno)	57.75	60	200	550	1000+		2960		
"O" Street (Fresno)	58.01	60	200	550	1000+		2960		

ROUTE 180

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road 80	75	70	65	60	55	50	45
Jct. Rte. 41 No. (Fresno)	58.08	55	170	450	1000+		2960		
Tuolumne Street (Fresno)	58.17	55	170	450	1000+		2960		
Ventura Street (Fresno)	58.91	60	200	550	1000+		2960		
First Street (Fresno)	59.43	60	200	550	1000+		2960		
Cedar Avenue (Fresno)	60.43	60	200	550	1000+		2960		
Cedar Avenue (Fresno)	60.43	55	170	450	1000+		2960		
Chestnut Avenue (Fresno)	61.44	35	110	310	1000	1000+	2960		
Clovis Avenue (Fresno)	63.45	50	160	400	1000+		2960		
Fowler Avenue	64.41	45	150	440	1000+		2960		
Fowler Avenue	64.41	25	80	220	700	1000+	2960		
Academy Avenue	71.61	25	80	220	700	1000+	2960		
Centerville Smith Avenue	74.61	30	90	280	800	1000+	2960		
Trimmer Springs Road	74.95		50	150	400	1000+	2960		
Trimmer Springs Road	74.95	28	85	230	700	1000+	2960		
Reed Avenue	77.49		50	150	400	1000+	2960		
Reed Avenue	77.49	35	120	300	1000	1000+	2960		
Hills Valley Road	87.71	30	100	270	800	1000+	2960		
Hills Valley Road	87.71	38	120	310	1000	1000+	2960		
Jct. Rte. 69	108.13	25	80	210	700	1000+	2400		
Tulare Co. Line		25	80	210	700	1000+	2400		

ROUTE 69

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road 80	75	70	65	60	55	50	45
Jct. Rte. 180		25	80	210	700	1000+	2400		

ROUTE 145

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road							
		80	75	70	65	60	55	50	45
Jct. Rte. 5	0.00				60	160	460	1000+	
Excelsior Avenue	10.33		22	65	200	550	1000+		
Lassen Avenue	13.21		22	65	200	570	1000+		
Cerini Avenue	15.22		25	75	250	700	1000+		
Elkhorn Avenue	17.27		25	75	250	700	1000+		
Kamm Avenue	20.28		35	95	290	800	1000+		
Colorado Avenue	20.05		35	95	290	800	1000+		
Colorado Avenue	20.05		25	75	250	700	1000+		
Madera Avenue Bk.	25.09		25	75	250	700	1000+		
Madera Avenue Ah.	25.09			25	75	250	700	1000+	
Manning Avenue Bk.	26.09			25	80	280	800	1000+	
Manning Avenue Ah.	26.09			40	130	360	1000+		
American Avenue Bk.	30.11		25	75	250	700	1000+		
American Avenue Ah.	30.11		40	100	350	1000	1570		
Church Avenue	33.30	25	75	200	700	1000+	2400		
"D" Street	24.07	50	180	560	1000+	2000	2960		
Whitesbridge Bk.	35.15	50	180	500	1000+	2000	2960		
Whitesbridge Ah.	35.15	50	150	400	1000+	2000	2960		
Belmont Avenue	36.05	30	80	220	650	1000+	2290		
Shaw Avenue	40.17	40	120	400	1000+		2960		

ROUTE 33

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road 80	75	70	65	60	55	50	45
Frenso Co. Line	0.00	15	50	150	500	1000+	2000		
Alpine Avenue	8.00	10	40	140	400	1000+	1670		
Merced Avenue	14.00	35	110	300	1000+	1000+	2800		
Merced Street	14.76	40	140	380	1000+		2960		
5th St. Coalinga	15.87	55	180	500	1000+		2960		
5th St. Coalinga	15.37	45	150	400	1000+		2960		
Elm St. Coalinga	15.71	50	160	500	1000+		2960		
Elm St. Coalinga	15.71	70	230	650	1000+		2960		
Los Gatos Creek Bridge	16.77	65	200	560	1000+		2960		
Gale Avenue	18.02	20	60	170	500	1000+	2000		
Oil King School	24.32	25	70	200	600	1000+	2100		
Jct. Coalinga-Mendota Road	27.02	25	65	180	550	1000+	2090		
Coalinga-Mendota Road	27.02	20	55	150	450	1000+	1750		
Jct. Rte. 5	39.05	8	25	65	200	550	1000+		
Adams Avenue	53.40	9	40	110	340	900	1000+		
Adams Avenue	53.00	8	30	80	250	700	1000+		
California Avenue	59.43	9	40	120	350	950	1000+		
Belmont Avenue (Mendota)	61.45	20	65	180	550	1000+	2090		
"O" St. (Mendota)	62.25	40	130	350	1000+		2960		
"O" St. (Mendota)	62.25	60	230	650	1000+		2960		
City of Firebaugh	68.64	30	90	280	1000+	1880	2960		
15th St. (Firebaugh)	69.92	65	200	550	1000+		2960		
12th St. (Firebaugh)	70.19	75	250	700	1000+		2960		
8th St. (Firebaugh)	70.56	55	180	500	1000+		2960		
Douglas Avenue	72.84	20	70	200	600	1000+	2100		
Brannon Avenue	79.91	25	55	180	550	1000+	2090		
Brannon Avenue	79.91	16	45	140	400	1000+	1670		
Merrill Avenue	81.82	13	40	120	350	950	1000+		
Shain Avenue	87.93	18	50	150	450	1000+	1750		
Fresno/Merced County Line	83.05	18	50	150	450	1000+	1750		

ROUTE 198

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road							
		80	75	70	65	60	55	50	45
Monterey/Fresno County Line	0.0	1	22	52	160	460	1000+		
Jct. Parkfield	11.33	1	22	52	160	460	1000+		
Coalinga Creek	12.45	3	25	75	220	650	1000+		
Coalinga So. City Limits	21/74	22	70	200	560	1000+	1880		
Polk Street (Coalinga)	22.87	18	67	160	495	1000+	1880		
Jct. Rte. 33 & 5th St. (Coalinga)	23.66	45	140	350	1000+		2960		
Jct. Rte. 5	26.31	34	100	300	1000+		2960		
Lassen Avenue	34.16	28	90	250	850	1000+	2720		
Fresno/Kings County Line	45.13	17	48	145	400	1000+	1670		

ROUTE 43

DESCRIPTION	Post Mile	Distance to Noise Levels, dB(A) in feet from Road							
		80	75	70	65	60	55	50	45
Kings/Fresno County Line	0.00	30	95	280	900	1000+	2800		
Nebraska	8.34	35	110	300	1000+	1880	2960		
Jct. Rte. 99	9.31	40	120	310	1000+	1880	2960		

Rail Traffic Noise
Distances to L_{dn} Noise Levels

R R Company	Route	Distance to Noise Levels dB(A), in Feet From Tracts	
		65	55
Southern Pacific	Fresno Yard - South	390	1,380
	Fresno Yard - North	390	1,380
	Fresno Yard - Coalinga	-	460
	Fresno Yard - Clovis	-	460
	Fresno Yard - Riverdale	-	460
	Fresno Yard - Calwa (Santa Fe Transfer)	175	675
	California Avenue	175	675
Atchison, Topeka, and Santa Fe	Main Line	460	1,670

Stationary Source Noise
Distances to L_{10} Noise Levels

City	Location	Land Use	Distance to Noise Levels, dB(A), in Feet From Source	
			65	55
Clovis	Sierra St. & Tollhouse St.	Clovis Ready Mix	794	1,610
Fowler	Seventh St. & Vine St.	Fowler Packing	105	335
Kerman	California St. & Seventh Ave.	Volanti Concrete	110	350
Kingsburg	Gilroy & Marion	Del Monte Corp.	40	282
	Marion & Williams	Cotton Oil	200	500
Parlier	Packers Rd.	United Packing	140	445
Sanger	Annadale St. & "K" St.	Seabrook Farms Packing House	105	335

APPENDIX K
METHODOLOGY FOR
COMPUTING 45dBA
CONTOURS

METHODOLOGY FOR COMPUTING 45 dBA CONTOURS

In lieu of computing 45 dBA contours generated by each kind of noise source evaluated for contours, this methodology is proposed for those jurisdictions wishing to show 45 dBA contours in Critical Noise Receiver Zones.

1. Road and Rail Traffic

Noise generated by road and rail traffic is a middle case between noise generated by a "point source" and noise generated by a "line source." According to the "inverse square law", as the distance from a point source doubles, the sound from that source drops off at the rate 6 decibels. The sound from a line source drops off at the rate 3 decibels per doubling of distance. Since rail and road traffic noise represent a middle case, sound from these sources drops off at 4.5 dBA per doubling of distance.

Table -1 shows the reduction of "A" scale sound levels with increasing distance using the drop-off rate of 4.5 dBA per distance doubling. To use the table, use the following procedure:

Step

1. Required Input:

   a. A given noise level
   b. The distance of the given noise level from the noise source

2. Find the known distance (Step 1b above) or the closest approximation of the known distance in the column labeled DISTANCE (feet).

3. Read across to the corresponding decibel figure in the column labeled REDUCTION (dBA).

4. Read down the column labeled REDUCTION (dBA) from the decibel figure determined in Step 3 until the decibel level reduction desired is reached.

5. Read back to the DISTANCE column to determine the distance of the desired noise level from the noise source.

EXAMPLE:

Given: 55 dBA at 525 feet from the source

Find: The distance of the 45 dBA noise level from the noise source.

TABLE K-1

NOISE REDUCTION FOR ROAD AND RAIL TRAFFIC

Reduction of "A" scale sound level at various distances from a vehicular "line source," relative to 50 feet distance, using the drop-off rate of 4.5 dB(A) per double distance

$$\text{dB(A) Reduction} = 15 \text{ LOG } \frac{\text{Distance}}{50} + \left|\frac{\text{Distance-1000}}{1000}\right| + \left|\frac{\text{Distance-2000}}{1000}\right|$$

for Distance greater than 1000 feet

for Distance greater than 2000 feet

DISTANCE (feet)	REDUCTION (dB(A)	DISTANCE (feet)	REDUCTION (dB(A)	DISTANCE (feet)	REDUCTION (dB(A)
50	0.0	316	12.0	1,770	24.0
54	0.5	339	12.5	1,880	24.5
58	1.0	367	13.0	2,000	25.0
63	1.5	397	13.5	2,090	25.5
68	2.0	428	14.0	2,190	26.0
74	2.5	463	14.5	2,290	26.5
80	3.0	499	15.0	2,400	27.0
86	3.5	538	15.5	2,500	27.5
93	4.0	582	16.0	2,610	28.0
100	4.5	629	16.5	2,720	28.5
108	5.0	676	17.0	2,840	29.0
117	5.5	731	17.5	2,960	29.5
126	6.0	790	18.0	3,080	30.0
136	6.5	847	18.5	3,200	30.5
147	7.0	922	19.0	3,330	31.0
158	7.5	998	19.5	3,460	31.5
170	8.0	1,070	20.0	3,590	32.0
184	8.5	1,140	20.5	3,730	32.5
199	9.0	1,215	21.0	3,860	33.0
215	9.5	1,290	21.5	3,990	33.5
233	10.0	1,380	22.0	4,130	34.0
251	10.5	1,470	22.5	4,270	34.5
270	11.0	1,570	23.0	4,410	35.0
292	11.5	1,670	23.5		

SOURCE: Bolt, Beranek, and Newman, Inc., 1973

Procedure:

1. Read down the DISTANCE (feet) column to 531 feet (the closest approximation to 525 feet).

2. Read across to 20.5 dBA in the REDUCTION (dBA) column.

3. Read down to 30.5 dBA in the same column since the desired reduction is 10 dBA from 55 dBA to 45 dBA.

4. Read back across to the DISTANCE (feet) column to 1,540 feet which corresponds to 30.5 dBA.

Answer: 1,540 feet

NOTE: If the need should arise to expand the table, use the dBA REDUCTION formula at the head of the table to do so.

2. Stationary Sources

Noise generated by stationary sources was analyzed in this report as noise generated by a point source. As noted in the preceding section, the sound from a point source decreases 6 decibels for each doubling of distance from the source.

Table K-2 shows the reduction of "A" scale sound levels with increasing distance using the drop-off rate of 6 dBA per distance doubling. To use the table, use the same procedure outlined for Table K-1.

EXAMPLE:

Given: 55 dBA at 140 feet from the source

Find: The distance of the 45 dBA noise level from the noise source.

Procedure:

1. Read down the DISTANCE (feet) column to 141 feet (the closest approximation to 140 feet).

2. Read across to 9 dBA in the REDUCTION (dBA) column.

3. Read down to 19 dBA in the same column since the desired reduction is 10 dBA from 55 dBA to 45 dBA.

4. Read back across to the DISTANCE (feet) column to 447 feet which corresponds to 19 dBA.

Answer: 447 feet

TABLE K-2

NOISE REDUCTION FOR STATIONARY SOURCES

Reduction of "A" scale sound level at various distances from a vehicular "point source", relative to 50 feet distance, using the drop-off rate of 6 dB(A) per double distance

$$\text{dB(A) Reduction} = 20 \text{ LOG } \frac{\text{Distance}}{50} + \left|\frac{\text{Distance-1000}}{1000}\right| + \left|\frac{\text{Distance-2000}}{1000}\right|$$

Distance greater than 1000 feet

Distance greater than 2000 feet

DISTANCE (feet)	REDUCTION (dB(A)	DISTANCE (feet)	REDUCTION (dB(A)	DISTANCE (feet)	REDUCTION (dB(A)
50	0.0	237	13.5	1,100	27.0
53	0.5	251	14.0	1,150	27.5
56	1.0	266	14.5	1,210	28.0
60	1.5	282	15.0	1,270	28.5
63	2.0	299	15.5	1,330	29.0
67	2.5	316	16.0	1,400	29.5
71	3.0	335	16.5	1,470	30.0
75	3.5	355	17.0	1,540	30.5
79	4.0	376	17.5	1,610	31.0
84	4.5	398	18.0	1,690	31.5
89	5.0	422	18.5	1,770	32.0
94	5.5	447	19.0	1,850	32.5
100	6.0	473	19.5	1,930	33.0
106	6.5	500	20.0	2,010	33.5
112	7.0	531	20.5	2,090	34.0
119	7.5	562	21.0	2,170	34.5
126	8.0	596	21.5	2,250	35.0
133	8.5	631	22.0	2,330	35.5
141	9.0	668	22.5	2,410	36.0
150	9.5	708	23.0	2,510	36.5
158	10.0	750	23.5	2,600	37.0
168	10.5	794	24.0	2,690	37.5
178	11.0	841	24.5	2,780	38.0
188	11.5	891	25.0	2,870	38.5
200	12.0	944	25.5	2,960	39.0
211	12.5	1,000	26.0	3,050	39.5
224	13.0	1,050	26.5	3,140	40.0

SOURCE: Bolt, Beranek, and Newman, Inc., 1973

APPENDIX L
CALTRANS POLICIES
FOR NOISE
ATTENTUATION ALONG
STATE ROUTES

STATE OF CALIFORNIA, DEPARTMENT OF
TRANSPORTATION (CALTRANS)
POLICY AND PROCEDURE NUMBER P. 74-47

I. Purpose

This directive outlines the basic policy and responsibilities of the Department in dealing with noise generated by motor vehicles on State freeways.

II. Policy

It is the objective of the Department of Transportation to reduce freeways traffic noise to specified standards on new construction and to achievable levels within practical and financial limits on existing freeways. Policies in support of this Departmental objective are described below in terms of the three approaches to alleviation of traffic noise problems--reducing the motor vehicle noise source, encouraging compatible adjacent uses, and decreasing the noise reaching adjacent areas.

A. Reduction at the Source

Reduction of traffic noise at the source is the most effective control; therefore, the Department encourages and supports legislation to require reduction in motor vehicle noise as advances in the state of the art of motor vehicle engineering permit.

B. Encouraging Compatible Adjacent Use

The Department encourages those who plan and develop land and the local governments controlling development or planning land use near known freeway locations to exercise their powers and responsibility to minimize the effect of vehicle noise and to locate land uses appropriately. For example, cities and counties have the power to control development by the adoption of land use plans and zoning, subdivision, building and housing regulations.

C. Noise Attenuation

The Department of Transportation will locate, design, construct, and operate freeways to minimize the traffic noise reaching adjacent areas.

III. Procedure

A. Reduction at the Source

Existing State law requires progressively lower allowable noise levels for new vehicles through 1987. As motor vehicle engineering advances are made these vehicle noise emission laws should be updated to further reduce vehicle noise to achievable levels.

Further, the Department encourages and supports local, State, and Federal agencies in the effective enforcement of existing vehicle noise laws. It is the effective enforcement that gives meaning to adopted vehicle noise laws and ordinances.

The Department will work with the appropriate Federal agencies in the implementation of the Federal Noise Act of 1972 (PL 92-574).

Cities and counties should adopt a noise ordinance which includes reference to vehicle noise and should pursue a vehicle noise law enforcement program.

B. Encouraging Compatible Adjacent Use

Vehicle noise attenuation is a shared responsibility; therefore, mitigation measured by the Department will be taken in relation to the assumption of local responsibilities by the respective cities and counties. These local actions would include, but not be limited to:

An adopted transportation noise element in the community general plan (as required by Section 65302 (g), California Government Code).

Subdivision regulations which provide for proper site design and building location where noise sensitive uses must locate in proximity to freeways.

Zoning regulations which separate noise sensitive land uses from proximity to freeways and locate land uses compatible with traffic noise adjacent to freeways.

Building construction requirements for soundproofing buildings from exterior noise.

C. Noise Attenuation

1. Freeway Mitigation Measures

The Department will take the following actions, within practical and financial limits:

a. During the route location study phase, the Department will endeavor to protect adjacent noise sensitive buildings and land uses by appropriate means of location and design, such as depressing of the freeway or construction of noise barriers.

b. For existing freeways (including freeways under construction and adopted freeway routes on which construction has not started), the Department will develop a program of appropriate measures to mitigate the effects of traffic noise upon noise sensitive developments and land uses. The program

will be based on factual data, objective criteria, and a system of priorities for action. A major criterion in determining priorities will be local action as listed in III.B to assume responsibility for planning and regulating land uses and buildings adjacent to freeways so as to reduce the effect of traffic noise.

In those areas where adjacent noise sensitive developments came into existence after commencement of construction of a now existing freeway, the local action listed in III.B, will be considered a requirement before the Department would consider remedial measures.

2. Research and Study of Noise Pollution

The Department will perform and encourage research to reduce the noise generated by motor vehicles.

The Department will continue research on noise barrier design and the development of improved noise reduction techniques. The Department also will study the impact of vehicle noise on individuals and the environment, and make other studies dealing with other public and private research and development on noise reduction.

3. Noise Abatement for Schools

The Department will undertake noise abatement measures in accordance with Section 216 of the Streets and Highways Code.

4. Technical Assistance

The Department will provide to cities and counties the sound level information relating to traffic on State Highways that these local units need for the preparation of the transportation noise element of their general plan as required by Section 65302 (g) of the California Government Code.

The Department will advise and assist in analyzing freeway traffic noise relating to land use, building, and housing regulation within its area of expertise.

IV. Action Required

A. The Legislative Affairs Unit shall:

1. Review, analyze, and recommend departmental positions on State and Federal legislation which requires reduced motor vehicle noise emissions.

2. Introduce and support legislation which will aid and implement departmental policies on motor vehicle noise control.

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